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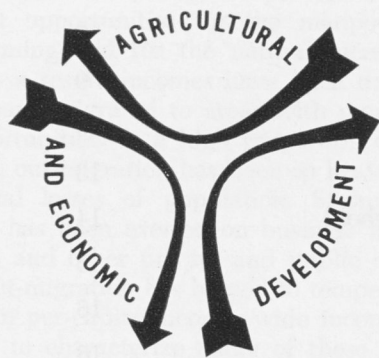


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Impact of New Industry on an Iowa Rural Community Part I. Farming and Farm Living

by Donald R. Kaldor, Ward W. Bauder and Marvin W. Trautwein

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and

Farm Population Branch

Economic Research Service

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Impact of New Industry on an Iowa Rural Community. Part I. Farming and Farm Living¹

by Donald R. Kaldor, Ward W. Bauder and Marvin W. Trautwein²

During the past two decades, forces associated with national economic growth have induced a rapid decline in demand for labor in farming. In many predominantly rural areas, nonfarm labor demands have not expanded fast enough to provide attractive employment opportunities for the manpower released from farming and for the natural increase in labor force. As a result, incomes have been depressed, and people have migrated to areas with more and better job opportunities. In a high proportion of rural communities, out-migration has been so heavy as to cause substantial losses of population. Strong adjustment pressure has been exerted on business firms, schools, churches and other private and public organizations. While out-migration has helped to temper the relative decline in per-capita income, wide income disparities continue to characterize many of these communities.

Although few people believe that the trend in labor demand in farming can or should be reversed, many believe that local industrial development can halt the decline in population and bring new economic vitality to these areas. Rural industrialization has been viewed as a partial solution to the farm problem and as a means of diminishing the adjustment problems of towns and cities heavily dependent on farm demands. As a result, there is a wide and growing interest in rural industrialization. Many towns and cities in rural areas are actively promoting new industry. These efforts are being supplemented by federal and state resources. Much of the federal effort is being made under the Rural Area Development and Area Redevelopment programs.

These efforts underline the importance of empirical studies to determine the changes wrought by industrialization in rural areas. In 1958, a study was initiated to analyze the socio-economic effects of new industry on a rural community of eastern Iowa. The investigation was divided into three parts. The first part was primarily concerned with the effects on farming and farm living. The second part examined the effects on urban households, and the third dealt with the impact on urban business and social organizations. This bulletin reports the findings from the first part of the study.

Industrial development in a rural community can have numerous effects on farming and farm living. Newly created nonfarm jobs may attract some farm people into urban employment. The people who take nonfarm jobs, however, are not likely to possess the same characteristics as those who do not. In other words, farm people with nonfarm jobs are not likely to be representative of all farm people in the area. Characteristics which differentiate those who take nonfarm jobs and those who do not are referred to as the selectivity effects of industrialization.

When one or more members of some farm families take newly created nonfarm jobs, other consequences are likely to follow. There may be changes in family income and adjustments in the internal organization and operation of the farm business and household. Shifts in the location of employment may be accompanied by changes in residence and the geographical incidence of consumer demand. The urbanization of rural areas may be speeded up as farm people with urban employment develop new social contacts. Changes in family, farm and household characteristics induced by the employment of farm people in nonfarm jobs are termed the employment effects of industrialization.

Industrial development, of course, may also influence the farming community less directly by changing the external environment within which farm families, firms and households function. For example, industrial development may raise the level of farm wages and thereby cause a reorganization of resources on farms

¹ Project 1368 of the Iowa Agricultural and Home Economics Experiment Station. The data on which this bulletin is based were secured as part of a cooperative research project of the Iowa Agricultural and Home Economics Experiment Station and the Farm Population Branch of the Economic Research Service, USDA.

² The authors are: Donald R. Kaldor, professor of economics, Iowa State University; Ward W. Bauder, social science analyst, Economics Research Service, United States Department of Agriculture; and Marvin W. Trautwein, formerly a graduate assistant in economics, Iowa State University. The authors wish to express their appreciation to the farm families who supplied data for this study and to Professor Norman Strand and Mrs. Helen Ayres of the Iowa State University Statistical Laboratory who designed the sample and assisted with the organization of field interviews, coding and tabulation of the data. The authors also wish to acknowledge the helpful cooperation of Clinton Engines Corporation officials.

using hired labor. Or, it may prompt a shift in the location of shopping facilities, resulting in changes in the shopping patterns of farm families. In general, the indirect effects are likely to be more diffused and more difficult to identify and measure than the more direct selectivity and employment effects. The long-run significance of indirect effects, however, may be just as great.

Because of technical problems and budget limitations, most of the research was devoted to examining selectivity and employment effects. With respect to these effects, major attention was focused on farm operators and their wives. The employment effects on the family, farm and household partly depend on the nature of family involvement in nonfarm employment. The effects on the farm business are likely to be greater, and the effects on the farm household are likely to be smaller, when the operator takes a nonfarm job than when the wife enters nonfarm employment. The effects are also likely to be still different when a son or daughter becomes employed off the farm. The analysis of selectivity and employment effects was further limited to those farm families who remained on the farm and continued to carry on a farming operation after nonfarm employment.³

Difficult problems arise in attempting to identify and measure the effects of industrialization. One of these is the problem of accurately measuring the changes in the variables studied. Measurement of change implies information for at least two points in time. Changes in primary data can be measured most accurately if the information is collected at each point in time since this tends to minimize memory bias. This would require a benchmark survey before the new industry was established and one or more surveys after the industry was in operation. This procedure was not followed for this study—partly because of the difficulties of finding a suitable rural community about to experience new industry and partly because of time and budget limitations. Only one survey was made in collecting information for this part of the study dealing with farming and farm living. So it was necessary to rely on the memory of respondents for information on the direction and amount of change. Undoubtedly, this involved some sacrifice of accuracy.

Accurate measurement of change, however, was not the most difficult problem encountered. After a new industry is established in an area, other forces of change continue to operate. The measured changes, therefore, may be the result of industrialization, of other factors or of both. Thus, there is a problem of determining how much, if any, of the observed changes can be attributed to industrialization and how much to other factors. For various reasons, the usual methods of handling this kind of problem were not usable in this part of the study. The procedure followed is out-

lined in a later section. Briefly, information on employment effects was obtained by a series of direct questions put to respondents on changes resulting from nonfarm jobs. Selectivity effects were derived as the residual differences between families with and without nonfarm employment that could not be explained by employment effects. While this procedure had some serious limitations as noted later, it appeared to be the best alternative under the circumstances.

The Study Area

The area selected for study was centered on the city of Maquoketa in Jackson County, one of the eastern tier of Iowa counties. The area included Jackson County and nine contiguous townships in Jones and Clinton counties (fig. 1). In late 1950, a new and relatively large industry was established in Maquoketa. Workers for the new industry were drawn mainly from urban places and farms within the study area. The boundaries for the study area were determined largely by a density map showing the location of employees of the new industry.

Maquoketa is roughly in the middle of an irregular triangle of cities of metropolitan or near-metropolitan size, but at a distance close to the upper limit of daily commuting. Maquoketa is 30 miles south of Dubuque, 30 miles northwest of Clinton, 50 miles north-northwest of Davenport and 60 miles east of Cedar Rapids. In 1950, these cities had populations ranging from 30,000 to 75,000; Maquoketa's population was 4,300. Other towns within the triangle were much smaller than Maquoketa and offered very limited opportunities for nonfarm employment.

In 1950, nearly 48 percent of the working population in Jackson County was engaged in farming, compared with 28 percent for Iowa as a whole. The population of Jackson County averaged slightly older and had a lower average level of formal education than the population of the state. In 1949, the median income of families and individuals in Jackson County was 14 percent below the state figure. While Iowa had a population density of 47 persons per square mile,

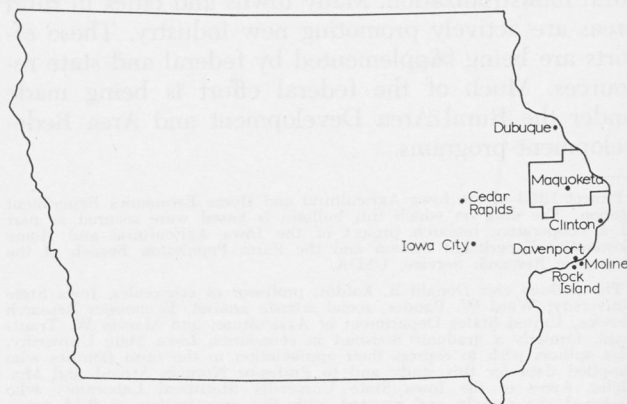


Fig. 1. Location of study area.

³ A subsequent report will analyze the migration effects associated with industrialization.

NUMBER OF
EMPLOYEES

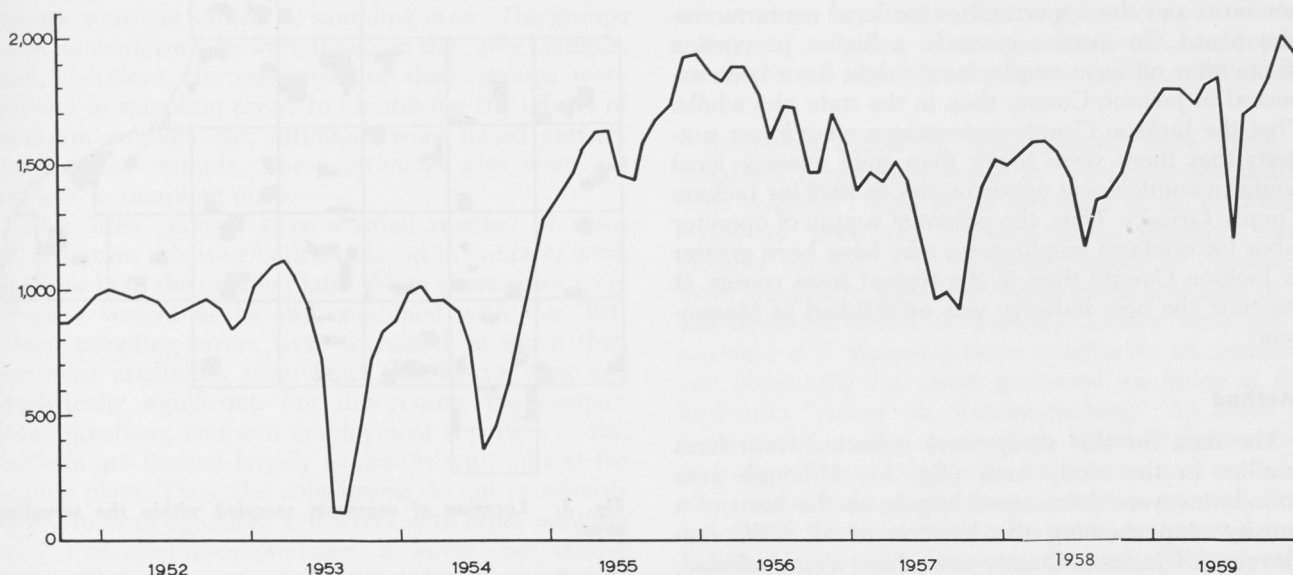


Fig. 2. Monthly employment at Clinton Engines Corporation, Maquoketa, Iowa, 1951 to 1959.

Jackson County had a density of only 29 persons per square mile.

Before the new industry was established, Maquoketa was a fairly typical agricultural community service center, depending heavily on demands from surrounding farms and nearby towns. In 1950, nearly two-thirds of the employed population were engaged in wholesale and retail trade and in various service activities. Only 12 percent were employed in manufacturing. Most of the manufacturing employment was provided by a small fishing-tackle factory that has since left the city.

In August 1950, the Clinton Machine Company (now the Clinton Engines Corporation) of Clinton, Michigan, established a plant in Maquoketa to manufacture small gasoline engines. The company planned to triple its production of engines. Supervisory personnel were transferred from the company's main plant in Michigan. Production workers were hired locally and given special training. In August 1951, all 4-cycle engine production was transferred to Maquoketa.

Soon after the plant was opened, employment increased to nearly 1,000 workers and remained close to that level during 1951 and 1952 (fig. 2). While employment in 1953 and 1954 was subject to sharp seasonal fluctuations, there was a rapid expansion in the number of workers in late 1954 and 1955. In December 1955, nearly 2,000 people were on the plant payroll. Average monthly employment declined in 1957 to about 1,280 workers but increased to 1,470 in 1958 and to 1,675 in 1959.

The company operated on a contract basis. As contracts were received, mostly from original equipment manufacturers, workers were hired for the production of engines. No large inventory of finished products

was maintained. Most of the orders arrived in the fall and winter, with the result that employment fluctuated seasonally. Typically, the level of employment reached a low during the summer, expanded during the fall, reached a peak in the winter and slackened off in the spring. This made employment at the plant more attractive to farm operators in the area. The slack period on the farm tended to coincide with the period of heavy employment at the plant.

After the plant began operations, the Clinton Engines Corporation (CEC) became the principal source of nonfarm labor demand in the area. Average monthly employment at the plant during 1952-57 was equal to about 73 percent of the level of total employment in Maquoketa in 1950 and 43 percent of the level of nonfarm employment in Jackson County in 1950. In 1954, CEC employment made up 80 percent of all manufacturing employment in Jackson County. By 1958, this figure had risen to 90 percent.

Feed-livestock farming is the dominant form of agriculture in the area. In 1957, farms in the survey area averaged 184 acres, including 116 acres of cropland and 57 acres of permanent pasture. Woodland, pastured and not pastured, made up nearly 10 percent of the land on the average farm. Livestock and livestock products are the principal source of farm receipts.

In 1949, Jackson County farmers were not employed off-farm as frequently as were Iowa farmers in general. In Jackson County, 23.8 percent of all farm operators did some work off their farm. For the state, the corresponding figure was 38.2 percent. While 10.6 percent of Iowa farmers worked off-farm 100 days or more in 1949, only 7.0 percent of Jackson County farmers spent this much time at off-farm work.

The proportion of operators working off-farms in Iowa counties is related to the level of farm income per farm and the opportunities for local nonfarm employment.⁴ On income grounds, a higher proportion of operator off-farm employment might have been expected in Jackson County than in the state as a whole. That the Jackson County percentages were lower suggests that there were fewer than state average local nonfarm employment opportunities in 1949 for Jackson County farmers. Thus, the potential supply of operator labor for nonfarm employment may have been greater in Jackson County than in the typical Iowa county at the time the new industry was established in Maquoketa.

Method

The data for this study were collected from farm families in the study area (fig. 1). Although area boundaries were determined largely on the basis of a density map showing the location of all CEC employees, all Jackson County townships were included, and all Illinois townships were excluded regardless of worker density. Approximately four-fifths of all the plant's workers resided in the survey area.

Sample

Two populations were defined. One consisted of farm families in which the husband, wife or both held a job at Clinton Engines Corporation during the 1957 calendar year. All such families were enumerated. The other population was made up of open-country families. A stratified random sample was selected from this population.

The population of farm operators and wives of farm operators who had worked at the engine plant during 1957 was based on a list provided by company officials. Since the list included both farm and nonfarm people, a screening process was necessary to eliminate nonfarm employees. The screening, however, was not completely effective. When interviewed, some of those believed to be farm operators failed to meet the Census definition and were excluded. Enumeration resulted in 119 completed schedules and 14 noninterviews.

For the stratified random sample, the area was divided into three strata, established to contain equal numbers of households. Townships were not split in this process, and each stratum was a contiguous area. Each stratum was divided into area segments averaging three households. A 1-in-18 random sample of segments was drawn within each of the three strata. The location of the selected segments is shown in fig. 3. Enumeration of the sample produced 156 schedules, six refusals and one unidentified noninterview. In subsequent discussion, this sample is referred to as the

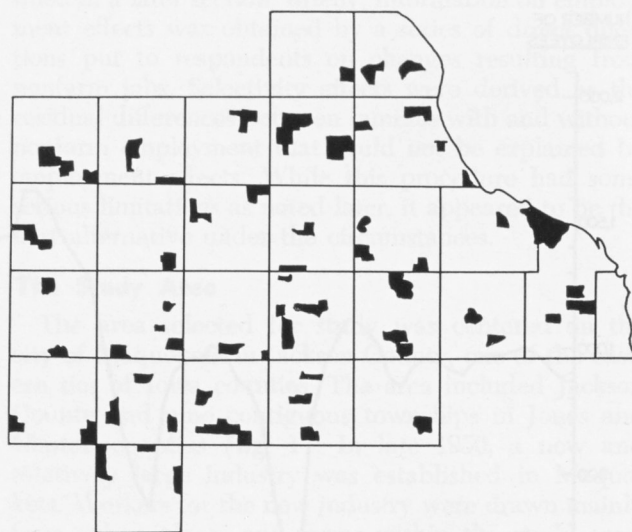


Fig. 3. Location of segments sampled within the sampling area.

"area" sample to distinguish it from the "list" (100-percent) sample or census.

Schedule

The schedule consisted of two parts.⁵ The first section was taken from the farm operator and dealt mainly with the operator's employment history, resources, farm business, income and attitudes toward industrialization. In addition, operators with nonfarm jobs during 1950-57 were asked a set of questions relating to the changes in their farm business resulting from nonfarm employment.

The second part was taken from the operator's wife. It was concerned largely with family relationships, social participation, household operation and expenditure patterns. Families with husbands, wives or both employed at nonfarm jobs during 1950-57 also were asked a series of questions about changes resulting from nonfarm employment.

The interviews were conducted by experienced enumerators following a 1-day school on administering the questionnaire. Both the list and area sample interviews were taken during the same period.

The data

Population estimates for the study area were prepared from the combined "area" and "list" samples by assigning a weight of 18 to "area" sample totals. These estimates were subject to sampling error from the "area" components.

In identifying differences associated with nonfarm employment, comparisons were made between groups with jobs at Clinton Engines Corporation and groups

⁴ M. W. Trautwein. Differential rates of resource adjustment within Iowa agriculture, 1940 to 1954. Unpublished M.S. thesis. Iowa State University Library, Ames.

⁵ Copies of the questionnaires are available from the Department of Economics and Sociology, Iowa State University, Ames, Iowa.

with no nonfarm jobs. The groups with CEC jobs were made up of "list" sample cases. Estimates for these groups were not subject to sampling error. The groups with no nonfarm jobs were based on the "area" sample, and, therefore, the estimates for these groups were subject to sampling error. In identifying the effects of nonfarm employment, estimates were based entirely on the "list" sample. These estimates also were not subject to sampling error.

The "area" sample gave a small number of cases of operators, wives or both employed in nonfarm work at other than the engine plant. When these cases were given a weight of 18 and combined with the "list" cases, sampling errors were increased so much that, for most attributes, even large differences were not statistically significant. For this reason, the comparisons involving nonfarm employment reported in this bulletin are limited largely to groups with jobs at the engine plant. Thus, the conclusions do not necessarily apply to farm operators and wives with other nonfarm jobs. For most characteristics, however, the sample estimates for operators and wives with other nonfarm jobs were more like those for operators and wives with jobs at the engine plant than estimates for operators and wives with no nonfarm jobs.

Construction of family organization and attitude indexes

Family organization is expressed in a complex web of interrelationships. Observations on who performs certain common tasks and who makes certain decisions provide clues to the pattern of organization. Because of time and resource limitations, only a sample of all the separate tasks and decisions that are part of the everyday life of a family could be measured. Information was obtained on who usually makes each of nine different decisions and who usually does each of 21 different tasks in and around the home and farmstead from all families where both the husband and wife were present and to which the questions were applicable. Because the sample included families in all stages of the family life cycle, some questions were not applicable to all; e.g., families who had no children could not answer questions about tasks or decisions concerning children. Similarly, questions regarding the decision to take a nonfarm job did not apply to all families.

To facilitate analysis of differences in family organization and attitudes, indexes were constructed as follows:

Index of decision-making. An index of husband's power in decision-making was constructed by weighting responses to questions regarding who usually makes certain decisions. Nine decisions were selected: (1) when to call a doctor, (2) how much to spend for food, (3) when and whether or not to purchase a major appliance or item of furniture, (4) how much spending money to give the children, (5) major pun-

ishment for the children, (6) when and whether or not to visit friends or relatives, (7) when and whether or not to go to a movie, fair or some other entertainment, (8) whether or not the husband should take a nonfarm job and (9) whether or not the wife should take a job.

Responses coded as "wife always" were given a weight of 1; responses coded as "wife more frequently than husband" were given a weight of 2; responses coded as "wife and husband about equally" were given a weight of 3; responses coded as "husband more frequently than wife" were given a weight of 4; and responses coded as "husband always" were given a weight of 5. Summing these weights for all decisions and computing the mean produced an index of the husband's "power" in decision-making.⁶ An index of 5 represents a case of complete husband dominance; an index of 1, complete wife dominance; and an index of 3, equal balance of power between spouses. Frequency of decision-making for each spouse and husband's power index for each decision are presented in Appendix tables A-1 and A-2.

Index of tasks performance. Four general categories of family tasks were observed: (1) household tasks, (2) child-care and control tasks, (3) financial tasks and (4) farm work tasks. The first included six specific tasks or household chores, the second included seven different tasks related to the care and control of children, the third included four activities involving the expenditure, management or both of family finances, and the fourth included five activities concerned primarily with work on the farm or around the farmstead.

An index of the wife's performance was constructed for each activity as follows. Responses to the question "who usually does the task" were weighted as follows: "wife" was coded as 5; "wife and another person other than husband," 4; "wife and husband," 3; "husband and another person other than wife," 2; and "husband," 1. The resulting indexes were labeled wife's task performance indexes. Cases where the task was performed exclusively by someone other than husband or wife, or by no one, were excluded from these computations. An index of 5 indicates that the wife assumes the major responsibility for the task and that the husband seldom or never does it. An index of 1 indicates the opposite situation, and an index of 3 indicates an equal division between husband and wife.

Brief descriptions of each task, the distribution of performance frequencies and indexes of wife's performance are presented in Appendix tables A-3 and A-4.

Index of attitudes. To compare attitudes and estimate the effects of nonfarm employment on attitudes, all heads of households and all wives were asked to

⁶ This procedure was used in an earlier study. See: Robert O. Blood, Jr., and Donald M. Wolfe. *Husbands and wives*. The Free Press, Glencoe, Illinois. 1960.

respond to a series of six statements regarding farm work and six statements regarding work in industry. Responses were weighted on a scale of 1 to 5 from least favorable to most favorable, and the values for each set of statements were summed to form two indexes—one for attitudes toward farming and one for attitudes toward industrial employment. The statements and the weights of different responses to each are presented in Appendix table A-5.

Limitations

Difficult problems are encountered in attempting to identify and measure the effects of industrialization. One of the most difficult in this study involved the separation of the selectivity and employment effects. Comparisons of the attributes of operators or wives with nonfarm employment and those without nonfarm jobs may exhibit sharp differences. These differences, however, may reflect selectivity effects, nonfarm employment effects or both. Without other evidence, there is no way of knowing whether the differences can be attributed to selectivity or nonfarm employment. To deal with this problem, an effort was made to obtain direct evidence on the employment effects and to derive the selectivity effects indirectly.

The information on employment effects was based on the responses of operators and wives to direct questions about changes resulting from nonfarm employment. For example, each operator with a nonfarm job during 1950-57 was asked if the number of acres he operated increased, remained the same or decreased as a result of taking a nonfarm job. Three sets of questions were used. The first related to the farm business. The second involved family income and organization. The third was concerned with family social participation. In asking each question, interviewers were instructed to repeat, "as a result of taking a nonfarm job," so that the respondent was reminded each time to identify only the changes attributable to nonfarm employment.

The quality of the resulting data depends on each respondent's ability to (1) recall changes that have occurred and (2) accurately attribute the changes to either nonfarm employment or other factors. The recall period varied among respondents. For a few, whose nonfarm employment came in 1950, the recall period was 8 years. In most cases, however, the period was 1 to 2 years. Even so, there is likely to be some memory bias reflected in the data. This may have resulted in some underestimation of the effects. If a benchmark study had been made just prior to the establishment of the engine plant, some of the difficulties in determining changes could have been eliminated. In most cases, the operators and wives probably would be aware of any substantial effects resulting from nonfarm employment, particularly those involving the farm business and household operation. This is less likely to be true of small and more subtle effects,

however. These are more likely to be missed by the casual observer. Nevertheless, under the circumstances, this approach seemed to provide the best means of identifying the impact of nonfarm employment.

Selectivity effects were evaluated by a two-step procedure. The first was to determine the characteristics that differentiated operators or wives with and without nonfarm employment. The second was to determine, on the basis of the direct information on employment effects, the extent to which these differences might be attributed to nonfarm jobs. Residual differences then were attributed to selectivity. For attributes, such as age and educational attainment, that are independent of employment, the selectivity effects are clear. For attributes that could differ because of either selectivity effects or nonfarm employment effects, the procedure gave three kinds of results: (1) cases in which the evidence indicated that the differences probably were the result of nonfarm employment effects, (2) cases in which the differences probably were the result of selectivity effects and (3) cases in which the differences probably were the result of both selectivity and employment effects, and the information was not sufficient to determine how much was due to each.

Because of the methods necessitated by the circumstances of this study, highly refined results were not possible. Much of the information that could be collected on nonfarm employment effects was qualitative. The direction, but not the magnitude, of the changes resulting from nonfarm jobs could be established. While estimates could be made of the number and proportion of cases affected by a particular qualitative change, the information did not permit estimates of the total change induced by nonfarm employment.

OPERATOR AND WIFE EMPLOYMENT

During 1957 nearly one of every 25 farm operators in the study area worked at the Clinton Engines Corporation plant in Maquoketa. About 3 percent of the wives of farm operators also worked there. In addition, an appreciable number of other farm household members (mostly sons and daughters) were employed at the plant. About 10 percent of the workers at the engine plant were farm operators or wives of farm operators residing in the study area.

The number of farm people with CEC jobs probably was higher in the years immediately preceding and following 1957. Average monthly employment at the plant was considerably higher in 1956, 1958 and 1959 than in 1957. Undoubtedly, changes in the total level of employment were reflected partly in changes in the number of farm people employed.

Most of the farm operators employed at the plant were skilled workers. About a third held jobs as machine operators. Nearly 18 percent were assembly line workers. Other jobs most frequently held were inspector and/or tester, foundry worker, maintenance

worker and foreman or supervisor. Most of these jobs involved 35 hours or more of work per week.

Of the 88 farm operators in the study area with CEC jobs in 1957, about 6 percent spent less than 20 percent of their total work time at the plant. Nearly 17 percent spent between 20 and 39 percent. About half spent between 40 and 59 percent. About 16 percent spent between 60 and 79 percent, and nearly 10 percent spent more than 80 percent of their total work time at the engine plant.

REASONS FARM HUSBANDS AND WIVES TOOK JOBS

The decision of farm husbands and wives to enter nonfarm employment may be prompted by many considerations. A nonfarm job may provide the means of earning more income. It also may require a smaller expenditure of effort and offer more leisure time. And it may afford an opportunity to work with other people and to develop additional social contacts. But the findings from this study indicate that most farm husbands and wives were motivated by the desire to earn extra income.

More than 95 percent of the farm families with husbands, wives or both employed at the engine plant reported that the desire for extra income was the main reason for taking a nonfarm job. Wives employed mentioned this reason about as frequently as did husbands.

Families reporting extra income as the main reason for entering nonfarm employment were asked to indicate why they wanted the extra income. The principal reasons mentioned, in order of decreasing frequency, were "get out of debt," "general living expenses" and "farm business expenses." Wives with CEC jobs mentioned household equipment more frequently and farm business expenses less frequently than did husbands with CEC jobs.

EFFECTS OF EMPLOYMENT

This section presents the findings on the effects of operator and wife nonfarm employment on the farm business and household. As noted earlier, the data relating to employment effects were generated by a series of direct questions. The questions dealing with the farm business were asked of the operator, and those relating to the household were asked of the wife.

Family Income and Expenditure

Practically all of the farm families with husbands, wives or both employed at the Clinton Engines Corporation plant reported increases in net family income as a result of nonfarm employment. The increments varied from less than \$100 per year to more than \$5,000 per year. The median increase was \$2,975.

Forty-six percent of the families with husbands, wives or both employed at the plant reported increases in excess of \$3,000. Thirty-five percent reported in-

creases of \$2,000 to \$2,999, and 13 percent reported increases of \$1,000 to \$1,999. Only 6 percent reported increases of less than \$1,000 (table 1).

Evidently a large proportion of the increase in family income resulting from CEC employment was used to raise levels of living. Nearly 58 percent of all uses reported were for general household and living expenses (table 2). The items mentioned most frequently in this category were household equipment, automobile, clothing and education. About 22 percent of all uses reported were for the farm business, mostly to purchase farm equipment. Debt retirement was involved in about 16 percent, and liquid savings in about 4 percent, of all uses.

More of the families with wives working reported using some of the extra income for purchasing clothing and household equipment, but, for most items, there appeared to be little difference associated with who earned the additional income. For most of the families, the decisions on how to use the extra income were made jointly by husbands and wives. Even among families with only wives employed, these decisions were made jointly in about four-fifths of the cases.

Employment at the Clinton Engines Corporation plant had a substantial impact on the shopping patterns of farm families involved. Half of the families with husbands, wives or both employed at the plant reported an increase in the amount of shopping they did at Maquoketa as a result of their nonfarm jobs (table 3).

Of the families who reported an increase in shopping in Maquoketa, nearly three-fourths indicated that they reduced their shopping in other towns. These families reported 19 different towns in which they did less shopping. Of the towns mentioned, 10 had 1960

Table 1. Distribution of increments to family income resulting from CEC employment of farm operators, wives or both.

Increment (dollars)	Relative frequency (percent)
1 to 999	6
1,000 to 1,999	13
2,000 to 2,999	35
3,000 and over	46
Total	100
Median increment	\$2,975

Table 2. Utilization of increments to family income resulting from CEC employment of farm operators, wives or both.

Use	Percent of all uses reported
Household and living expenses	58
Farm business	22
Pay off debts	16
Liquid savings (stocks and bonds)	4
Total	100

Table 3. Shifts in location of shopping by farm families as a result of CEC employment.

	Percent
Families reporting an increase in shopping at Maquoketa	50
Families reporting no change in shopping at Maquoketa	50
Total	100
Families reporting an increase in shopping at Maquoketa, who reported a decrease in shopping at other towns	74
Families reporting an increase in shopping at Maquoketa, who reported no change in shopping at other towns	26
Total	100

Table 4. Types of goods and services involved in the shift in shopping location by farm families with husbands, wives or both employed at CEC.

Type of goods and services	Percent reporting specified items ^a
Clothing	84.4
Groceries	82.8
Furniture and household appliances	46.5
Gasoline, oil and car repair	34.5
Hardware	34.5
Doctor and dental services	31.0
Drugs	15.5
Entertainment	6.9
Banking services	3.4
Newspapers and magazines	1.7
Other	5.2

^a Total exceeds 100 percent because some respondents reported more than one item.

populations under 1,000, five had population between 1,000 and 5,000, and four had populations exceeding 30,000. All were located within a radius of 60 miles of Maquoketa. Towns of less than 1,000 population were mentioned 17 times, towns of 1,000 to 5,000 population were mentioned 15 times, and towns of over 30,000 population were mentioned 30 times.

As shown in table 4, the shift in shopping location affected some goods and services more than others. Groceries and clothing were involved more frequently than were household furnishings, gasoline, oil and car repairs, hardware, and doctor and dental services. The latter items were involved more frequently than entertainment, banking services and newspapers and magazines.

Effects on the Farm Business

Operator nonfarm employment may affect the farm business by increasing the relative scarcity of operator time and by encouraging farm investment. If an operator takes a nonfarm job to increase income, it is reasonable to assume that the marginal return to his labor was greater in the nonfarm job than in the farm business. Thus, the opportunity cost of operator labor may increase with nonfarm employment. Depending on the elasticity of supply of operator effort with respect to income, this may induce adjustments in resource inputs, product mix, output and farm income.

The increase in family income associated with nonfarm employment may increase family savings and lower the opportunity cost of investment in the farm business. This may encourage farm capital formation and greater use of labor-saving and output-increasing technology. Thus, the income effects may neutralize, at least in part, some of the adjustment pressures that may arise because of a greater scarcity of operator labor. In some cases, the increase in family income may prompt a substitution of leisure or household activities for income-producing activities, with the result that the amount of farm labor contributed by the operator's wife declines.

In general, the evidence from this study indicates that, with the kind of selectivity that occurred, operator nonfarm employment had comparatively little effect on the farm business. Where adjustments did take place, they were of the kind that would be ex-

pected on the basis of *a priori* considerations. For the most part, the adjustments involved labor and efforts to economize its use.

Labor use

An increase in the amount of time spent by a farm operator at nonfarm work may or may not reduce the labor input in the farm business, depending on various substitution effects.

If the operator were unemployed a large share of the time, nonfarm employment may simply utilize his time more fully without decreasing the amount of time devoted to farm work. If the effective quantities of farmland and capital were extremely small, the marginal return to labor in the farm business may be so meager as to induce an inordinate amount of leisure time. Under these circumstances, an opportunity for nonfarm work at a much higher return may result in a large substitution of income for leisure. Total work time might increase enough to offset the time devoted to nonfarm work, with little or no change in time spent at farm work.

But suppose that nonfarm employment involves a large and relatively fixed input of operator time and that the amount of strictly leisure time has not been great. Perhaps the operator has been quite busy, but because of small amounts of cooperating inputs (land and capital), his labor has not been very productive. In such a case, there may be substitution of income for leisure and also substitution of nonfarm work for farm work. Time devoted to farm work may decline, but the decrease may be less than the increase in time spent at nonfarm work because of an increase in total work time.

In other cases, the decline in operator time at farm work may be almost as large as the increase in time devoted to nonfarm work. Such an adjustment is likely when (1) the operator's total work time is already large, (2) opportunities exist for substituting family labor for operator labor and (3) the family desires to substitute income for leisure or other nonincome activities at the level of return offered by nonfarm employment.

In any particular case, the adjustment in operator work time will depend on the rates at which leisure or other nonincome activities can be transformed into income in both the farm business and nonfarm employment and the rates of substitution in consumption between income and leisure or other nonincome activities. Because these rates are likely to vary among families and farms involved in nonfarm employment, the adjustments in the allocation of operators' time may be expected to vary. Nevertheless, some reduction in the amount of time devoted by operators to farm work is likely in an area where industrial development is inducing an increase in part-time farming.

About 35 percent of the operators with jobs at the engine plant reported no change in the amount of

Table 5. Effects of operator employment at CEC on labor use in the farm business.

Characteristic	Percent reporting			Total
	No change	Increase	Decrease	
Amount of time spent by operator at work on the home farm	35	2	63	100
Amount of time spent by operator's wife at farm work on the home farm	48	44	8	100
Amount of time spent by other household members at farm work on the home farm	62	34	4	100
Total amount of time spent by all household members at farm work on the home farm	53	19	28	100
Amount of labor hired for work on the home farm	73	22	5	100

time they spent at farm work as a result of nonfarm employment (table 5). Apparently, these operators substituted income for leisure and increased their total work time to make up for the time spent at nonfarm work. As noted earlier, many of these operators were on small, relatively unproductive farms and probably had large amounts of leisure time. In some cases, the substitution of income for leisure was carried so far as to result in an extremely large amount of total work time. When these operators allocated some of their time to nonfarm work, they reduced their leisure time, worked more total hours and did about as much farm work as before. For more than a third of the operators with CEC jobs, the result was a fuller use of time for income-producing activities.

In 63 percent of the cases, there was a decrease in the amount of time spent by the operator at farm work. Undoubtedly, some of these operators also increased their total work time by substituting income for leisure or other nonincome activities, although not enough to prevent a cut-back in farm work. Even when operator farm work does decline because of nonfarm employment, it may not mean a reduction in total labor use on the farm. Family or hired labor may be increased enough to offset the decrease in operator labor.

The extent to which family labor may be substituted for operator labor will depend partly on the size and composition of the family residing on the farm. It also will depend on the rate at which family members can transform their present time-using activities into the equivalent of operator labor and upon the values the family attaches to changes in income and nonincome activities. Because of different family situations, a given decline in farm work by the operator may prompt a large substitution of family labor in one case and no substitution in another case. Although wide variability may be expected among farm families, some increase in family labor devoted to farm work is likely to occur when operators take nonfarm jobs.

About 44 percent of the operators with nonfarm employment reported that the amount of time spent at farm work by their wives increased as a result of their nonfarm employment. Thirty-four percent indicated that there was an increase in the amount of time household members other than wives spent working on the farm. Most of this increase involved operators' sons. Because of offsetting adjustments in family labor,

only 28 percent of the group reported a decline in the total amount of time devoted to work on the farm by all household members. About 19 percent reported an increase. This may be explained by the likelihood that family labor substituted for operator labor in the farm business at something less than a 1:1 rate. Most of the family labor was provided by young sons and wives whose work accomplishments per hour would tend to be less than that of the operator.

The effect of operator nonfarm employment on the use of hired labor is conditioned by the opportunities to adjust the operator's work-leisure mix and to use family labor. If the supply of operator and family work effort is quite elastic with respect to income and if the time distribution of this supply is reasonably well geared to the demand, there is not likely to be any increase in hired labor. Because of selectivity effects in the employment of farm operators at nonfarm jobs, this is likely to be the situation on most part-time farms. Seventy-three percent of the operators with nonfarm jobs reported no change in the amount of labor hired as a result of nonfarm employment. About 22 percent reported that they hired more labor.

A nonfarm job may prompt an increase in hired labor in a period of peak seasonal demand—even though the amount of operator and family labor is adequate for all farm tasks at other times. The nonfarm job commitment may not permit an adjustment in nonfarm working time so that the operator can perform certain seasonal tasks, and family labor may not be available or suitable. Rather than forego the opportunity to make more effective use of his labor over most of the year, the operator may hire some help to handle the seasonal load. It is likely that the 22 percent who reported an increase in hired labor as a result of their nonfarm job hired only a small amount of additional labor. Because of the small size of their farm businesses, most of the part-time farmers used no hired labor.

Labor-saving practices and custom work

In general, nonfarm employment may be expected to increase the opportunity cost of operator labor in the farm business. This may prompt efforts to economize on the use of labor. For one thing, it may encourage the substitution of other inputs. Since nonfarm employment tends to increase family income, the opportunity cost of investment funds for the farm business may decline. As noted earlier, about 22 percent of all uses of the extra income from CEC employment were for the farm business.

On farms where the opportunity cost of investment funds for the farm business declines, the effect may be to increase the use of labor-saving machinery and practices. This is particularly true in cases where the supply of family labor is highly inelastic so that family labor cannot be readily substituted for operator labor. If operator time for farm work is greatly reduced by a nonfarm job, greater use of labor-saving technology

may occur over the longer run even when the short-run adjustments are longer working hours by the operator and extra effort by family members. This is most likely to happen if the short-run adjustments place an abnormally heavy load on operator and family labor.

Nearly 24 percent of the operators with nonfarm jobs reported an increase in the use of labor-saving machinery as a result of their nonfarm employment (table 6). About 22 percent indicated that they increased their use of other labor-saving practices. Some operators made adjustments in machine hire and custom work done for others. About 19 percent reported an increase in machine hire, and 8 percent reported a decrease in custom work done for others. For most farmers, however, nonfarm employment failed to induce adjustments in the use of labor-saving technology and custom work.

Table 6. Effects of operator employment at CEC on machinery use, practices and custom work.

Characteristic	Percent reporting		
	No change	Increase	Decrease
Use of labor-saving machinery	73	24	3
Use of labor-saving practices	78	22	0
Amount of custom work hired	76	19	5
Amount of custom work done for others	89	3	8

Land use

Nonfarm employment also may induce adjustments in land use and crop production. Again there is the possibility, however, that the effects of a greater scarcity of operator labor may be partly offset by the investment effects of greater family income.

An increase in the scarcity of operator labor might be expected to induce a substitution of labor-extensive crops for labor-intensive crops. Land in corn, oats and soybeans might be reduced in favor of more land in hay and pasture. There also might be some cutback in land input.

The pressure for such adjustments is likely to be greatest on farms characterized by (1) a sharp rise in the opportunity cost of operator labor, (2) a highly inelastic supply of operator and family labor and (3) only a small reduction in the opportunity cost of investment funds for the farm business. In cases in which the supply of operator and family labor is highly elastic or in which the increase in family income encourages investment in labor-saving forms of capital, or both, the pressure for such adjustments is likely to be small or nonexistent. Since only 28 percent of the part-time farmers in the study area reported a decrease in the total amount of household time spent at work on the home farm, the supply of operator and family labor on most of the farms must have been sufficiently elastic to offset the effects of operator nonfarm employment. Consequently, an increase in the scarcity of labor could have exerted adjustment pressure on less than a third of the units. Even among some of these, increased capital investment probably offset the effects of less labor. The available evidence supports this view.

Table 7. Effects of operator employment at CEC on land use.

Characteristic	Percent reporting		
	No change	Increase	Decrease
Total acres operated	81	4	15
Land in corn, oats and soybeans	68	4	28
Land in meadow or tame hay	80	11	9
Land in permanent pasture	93	7	0
Participation in government production control programs	84	15	1
Amount of land placed in the Soil Bank	82	18	0

As shown in table 7, relatively few operators with CEC jobs made land use adjustments as a result of nonfarm employment. About 15 percent indicated that they reduced the number of acres operated, and 4 percent said that they increased their land base. The increases appeared to be cases in which the operator used part of the income from nonfarm work to expand the size of the farm business.

A shift away from labor-intensive crops (corn, oats and soybeans) was reported by 28 percent of the operators with nonfarm jobs. However, 68 percent reported no change in the percentage of land in corn, oats and soybeans. Eighty percent of the group stated that they made no adjustment in the percentage of land in meadow and tame hay. The remainder was split between those reporting increases and those reporting decreases. About 7 percent stated that they increased the proportion of land in permanent pasture. None reported a decrease in this item.

Nonfarm employment also had some effect on participation in government control programs. About 15 percent said that their CEC job prompted participation in government programs. Nearly 18 percent reported that they increased the amount of land placed in the Soil Bank because of their nonfarm job.

Livestock program

Apparently, operator employment at CEC had a somewhat greater effect on livestock programs than on cropping systems. At least a larger proportion of operators reported making changes in livestock programs because of nonfarm employment. Most of the changes involved decreases in the more labor-intensive enterprises, with some shift to more labor-extensive enterprises (table 8).

Table 8. Effects of operator employment at CEC on livestock enterprises.

Characteristic	Percent reporting		
	No change	Increase	Decrease
Number of sows farrowed	76	1	23
Number of feeder pigs purchased	95	0	5
Milk cows kept	65	5	30
Beef cows kept	80	15	5
Cattle fed out	90	3	7
Number of lambs raised	35	3	62
Number of chickens raised	84	1	15

About 62 percent of the farmers with CEC jobs reported that they decreased the number of lambs raised because of nonfarm employment. Nearly 30 percent stated that they reduced the number of milk cows kept, and about 23 percent said that they decreased the number of sows farrowed. While 5 percent reported a decrease, nearly 15 percent reported an increase

in the number of beef cows kept. With the exception of the lamb enterprise, however, the majority of farmers reported no change in livestock numbers because of nonfarm employment.

Farm output and income

The impact of operator nonfarm employment on the level of farm output largely depends on the size of the substitution effects and the amount and kind of net investment in the farm business. The conditions under which a decline in output is most likely are (1) a highly inelastic supply of operator and family effort with respect to income, (2) little opportunity to economize on the use of labor in crop and livestock production and (3) a low propensity to invest in the farm business. These conditions, however, are not likely to be satisfied as frequently on farms where operators have taken nonfarm jobs as on other farms. Where these conditions are met, operators have less reason for taking nonfarm employment. Because of selectivity effects, operator nonfarm employment is not likely to reduce output on most farms.

It was noted earlier that, in 35 percent of the cases, there was no change in operator farm work because of nonfarm employment. For these farms, there would be no reason to expect a decline in output. In some of these cases, the family income effect could have prompted additional investment in the farm business with the result that output increased.

In 63 percent of the cases, operator farm work declined. However, there were increases in farm work by other members of the operator's household so that total household farm work declined on only 28 percent of the farms. In addition, 22 percent of the operators with CEC jobs reported some increase in hired labor. These adjustments tended to offset the effect of a greater scarcity of operator labor on farm output.

The findings show that, in 63 percent of the cases, operators reported no change in total output as a result of their CEC jobs. However, 36 percent stated that total output declined because of nonfarm employment (table 9). Operators reporting no change in total output gave several reasons for the lack of change. Some farmers indicated that they worked harder on the farm, did farm work at night and were able to more effectively utilize time that was wasted before taking their job. Others reported that family labor made up for the cutback in operator farm work. Still others reported combinations of these reasons along with greater use of labor-saving technology.

For most of these farmers, it is highly likely that CEC employment had little, if any, farm income re-

ducing effect. Income from farming probably declined for most of the operators reporting a decline in output, but, in many of these cases, the decrease in income from farming undoubtedly was small. For upwards of two-thirds to three-fourths of the families with operators employed at the engine plant, the increase in income from nonfarm employment was not associated with any appreciable decline in income from farming. Thus, it appears that the additional income from CEC employment was largely a net increase in the income of farm families in the study area.

Nonfarm Employment of Sons

Local industrialization may prompt sons as well as husbands and wives to take nonfarm jobs. On farms where part of the labor input has been provided by sons, this may reduce the amount of family labor available for the farm business. As a result, it may induce adjustments in resource combinations, product mix and the level of output.

But the impact of local nonfarm employment of sons on the farm business is complicated by possible effects on migration. If the availability of local nonfarm jobs prevented the migration of sons to other areas, it might increase the length of time that sons spend on the home farm and actually increase the contribution of sons to labor input in the farm business. Thus, nonfarm employment of sons who have been helping out on the home farm may increase the scarcity of labor on some farms but reduce it on others, depending on how long the sons would have stayed on the farm if local nonfarm jobs had not been available.

In the study area, about 11 percent of the farm operators had sons with nonfarm jobs living at home during the 1950-57 period. Of these operators, nearly 70 percent indicated that their sons did less work on the home farm as a result of taking a nonfarm job. Almost 30 percent stated that their sons did about as much farm work after they took a nonfarm job as they did before. Only 39 percent of these operators, however, reported making adjustments in their farm business because of their son's nonfarm job. For the most part, these adjustments involved greater effort on the part of the operator and other family members and an increase in hired labor. Only 8 percent of the operators having sons with nonfarm jobs reported a decline in total output because of their son's job.

Operators having sons with nonfarm jobs living at home were asked if their sons would have left or stayed on the farm if a nonfarm job had not been available within driving distance. About 68 percent of these operators stated that their sons would have left the farm. Nearly 32 percent said that their sons would have stayed on the farm. However, the impact of the migration effect on the availability of labor for the farm business was not determined.

Table 9. Effect of operator employment at CEC on the level of farm output.

Farm output effect	Percent reporting
Increase	1
Decrease	36
No change	63
Total	100

Effect of Nonfarm Employment on the Farm Household

While effects of nonfarm employment on the farm business arise mainly from the operator's employment, effects on the household may come from the operator's employment, the wife's employment or from employment of both. Questions regarding changes made in decision-making and task performance because of nonfarm work were asked of the wife. In families where only the wife or only the husband were employed, it was obvious whose job caused the change. But in families where both had nonfarm jobs, the job that caused the change could not always be identified.

Although division of authority in decision-making and division of task responsibility are largely set by prevailing societal norms regarding husband and wife roles, changes in circumstances may alter established patterns. Nonfarm employment of one or the other spouse involves two factors which may be expected to cause alteration: (1) differences in personal power or ability to provide for the needs of the family through earned income and (2) differences in availability at the time a particular decision must be made or a particular task must be performed. The latter may be especially important in altering patterns for decisions or tasks that are normally shared by husband and wife.

Decision-making

In general, nonfarm employment caused relatively little change in the authority patterns of these farm families. Only 8 percent of all families with nonfarm employment reported making changes. Since most of those who did make changes made them in only one or two decisions, the proportion of total possible changes made was considerably less than 8 percent. The number of changes actually made, as a proportion of all changes that could have been made if all families had changed the pattern of each of the applicable decisions, was only 3 percent (table 10).

Although taking a nonfarm job can influence the relative power of husband and wife by altering their relative abilities to provide for the financial needs of the family,⁷ this was not the major factor in changing authority patterns. With one exception, the reported reasons for change were that the nonfarm job hours

⁷ *Ibid.*

Table 10. Number of farm families, with one or both spouses employed at CEC, reporting changes in who made certain decisions because of CEC employment, by spouse's employment status.

Decision	Families reporting changes			Total
	Husband only employed	Wife only employed	Husband and wife employed	
General decisions	N=56	N=31	N=32	N=119
To call a doctor	3	0	0	3
How much to spend for food	1	0	0	1
Purchase of major appliance or furniture	1	1	0	2
Visiting friends or relatives	2	1	1	4
Attending movies or other entertainment	3	0	1	4
Decisions regarding children	N=40	N=19	N=22	N=81
Major punishment for children	5	1	1	7
Spending money for children	1	0	0	1
Number of changes made	16	3	3	22
Number of possible changes	360	193	204	757
Percent	4.4	1.6	1.5	2.9

kept one of the spouses away from home during much of the time when the occasions for decision-making arose. The exception was the case of a wife with nonfarm employment who reported that, since taking a job, she had more to say about purchases of furniture and major appliances because some of the money used was hers.

Most changes occurred in decisions that typically are made jointly by husband and wife, and the chief effect of nonfarm employment apparently was to increase the incidence of unilateral decision-making in decisions normally made jointly. (See Appendix table A-1 for distribution of decision-making between husband and wife for different decisions.) Increased absence from the home by the husband because of nonfarm employment produced more change in decision-making patterns than did absence from the home by the wife because of nonfarm employment (table 10).

Family tasks

Nonfarm employment caused more change in task performance than in decision-making, but the volume of change was still not extensive. Only 7 percent of the possible changes in task performance were made, compared with 3 percent for decisions.

The amount of change produced varied with which spouse was employed and the typical division of labor for the task. Nonfarm employment of the wife produced more change in tasks typically regarded as hers, and nonfarm employment of the husband produced more change in tasks typically regarded as his.

In table 11, tasks are grouped according to the modal pattern of distribution for families with nonfarm employment and are ranked from highest to lowest percentage in the modal categories. Thirteen of the 21 tasks were classified as typically the wife's responsibility, four were typically the husband's, and four were typically shared. Four of the 13 wife's tasks also were frequently shared and, therefore, are listed separately.

Changes because of nonfarm employment were most frequent among families with only the wife so employed for 12 of the 13 tasks described as typically the wife's responsibility. The exception was shopping for groceries; nonfarm employment of the wife produced

Table 11. Percentage of farm families, with one or both spouses employed at CEC, reporting changes in selected family tasks because of employment, by spouse's employment status.

Tasks arranged by modal pattern for families with neither spouse employed at nonfarm work	Percent of cases ^a in modal group	Percent reporting change					
		Husband only employed		Wife only employed		Husband and wife employed	
		N=56	N=40 ^b	N=31	N=19 ^b	N=32	N=22 ^b
Task typically performed by the wife							
Family wash	90.1	0.0	..	16.1	...	21.9	...
Getting breakfast	85.7	3.5	..	38.7	...	28.1	...
Picking up things	82.4	1.8	..	3.2	...	12.5	...
Dishes of main meal	81.3	1.8	..	19.4	...	21.9	...
Care of chickens	61.9	0.0	..	3.2	...	10.0	...
Seeing that children wear right clothing	86.2	...	0.0	...	15.0	...	4.2
Getting children ready and off to school	75.9	...	0.0	...	30.0	...	17.4
Helping children with homework	51.9	...	2.2	...	9.5	...	4.5
Reading to children	40.7	...	0.0	...	25.0	...	4.3
Task typically performed by wife but also frequently shared							
Gardening	64.4	0.0	..	12.9	...	3.2	...
Shopping for groceries	46.2	5.3	..	0.0	...	3.2	...
Seeing that children go to bed	50.8	...	6.5	...	28.6	...	24.0
Taking children to doctor or dentist	39.0	...	2.2	...	4.5	...	4.0
Task typically performed by the husband							
Field work	79.5	7.0	..	6.4	...	0.0	...
Chores other than care of chickens	51.1	15.8	..	5.3	...	6.7	...
Fixing broken items	49.5	1.8	..	6.4	...	6.2	...
Keeping records	37.4	0.0	..	0.0	...	0.0	...
Task typically shared by husband and wife							
Planning savings	68.5	0.0	..	0.0	...	3.2	...
Paying bills	52.7	3.5	..	3.2	...	0.0	...
Care of yard and lawn	25.3	5.3	..	12.9	...	3.1	...
Settling children's arguments	65.6	...	0.0	...	9.1	...	4.3

^a See Appendix table A-3 for complete distribution of task performance in modal group.

^b Not all families had children, thus the N's for tasks involving children are smaller.

no change in who performed this task. Nonfarm employment of the husband, however, caused change in grocery shopping in 5.3 percent of the cases.

The incidence of change in families with both husband and wife employed was similar to the incidence of change in families with only the wife employed. This is further indication that, for tasks typically performed by the wife, the wife's employment was more important than was her husband's in producing change in task performance.

Among tasks that are typically the husband's responsibility, the pattern of change is not as clearcut. For two tasks—field work and chores—nonfarm employment of the husband produced more change than did nonfarm employment of the wife, but nonfarm employment of the wife caused more change in who fixed broken things. Responsibility for keeping records was not changed by either husband's or wife's employment. Although husband dominance was the modal pattern for this task, the frequency of wife dominance and the frequency of sharing between husband and wife were nearly as high. As a consequence, the distribution approached that typical of tasks classified as shared. It is not surprising, therefore, that the effect of nonfarm work on who keeps records was similar to the effect on shared task patterns.

As a group, the tasks typically shared by both husband and wife were the least affected by nonfarm employment. The most affected was the task of settling children's arguments. Nine percent of the families with only the wife employed and 5 percent of the families with both employed reported change, while none of the families with only the husband employed reported change. Although sharing is the modal pattern for this task, 23 percent of the families with no

nonfarm employment reported that it was the wife's primary responsibility against 10 percent reporting that it was the husband's. This could account for the differential effect of husband's and wife's nonfarm employment.

To summarize, nonfarm employment of one spouse caused the most change in tasks typically performed by that spouse and the least change in tasks typically performed by the other spouse. Nonfarm employment of both spouses caused the most change in tasks typically performed by the wife and the least change in tasks typically shared by both. In general, employment of the wife had more effect on family tasks than did employment of the husband.

The exact nature of the change caused by nonfarm work was not always identified, but, in general, the effect was to reduce the frequency of performance by the employed spouse and to increase the frequency of performance by the other spouse or someone else. For tasks usually performed by wives, shifts of responsibility to one of the children or someone else were especially frequent.

Effect on Social Participation

Nonfarm employment may affect family social activity in two ways. It may change the amount of time available for nonoccupational activities, or it may change the kinds of interests central to social participation through exposure to different people and different activities.

Membership and activities in formal groups were used to measure formal social participation, and visiting was used as a measure of informal social participation.

Responses to questions regarding changes in formal social participation indicated that nonfarm work caused

both increases and decreases, with decreases outnumbering increases 20 to 17. Among families with only the wife employed and families with only the husband employed, decreases and increases were fairly evenly divided, 3 to 4 and 10 to 9, respectively, while, for families with both spouses employed, there were 7 decreases to 4 increases.

Among those reporting an increase, about three-fifths said that they had joined new organizations, and two-fifths said that they had attended more meetings of organizations to which they already belonged. Three reported that they held more offices. The principal organization joined was the labor union. Among those decreasing participation in formal organizations, half dropped memberships, and half attended fewer meetings. One person discontinued holding an office in an organization because of a nonfarm job.

Nonfarm employment of the wife had a somewhat greater impact on formal social participation than nonfarm employment of the husband. Of families with only the wife employed and families with both employed, 18 and 20 percent, respectively, reported changes, compared with 12 percent for families with only the husband so employed.

When asked what aspects of their nonfarm work caused the change in formal social participation, most of the respondents who had decreased their membership said that either lack of time or working the night shift kept them from attending meetings. Those who reported increases gave joining the union as the reason.

About one-fifth (19 percent) of the families with nonfarm work reported changes brought about by their nonfarm jobs in the number of families visited regularly. The decreases outnumbered increases two to one. Also, nearly half (46 percent) reported a decline in frequency of visits, while only 1 percent reported an increase. The remaining families reported no change.

The effect of the nonfarm job on frequency of visits did not vary with who had the nonfarm job, but employment of only one spouse caused more decreases than increases, while employment of both caused an equal number of increases and decreases in the number of families visited. Less time, working the evening shift and moving away from friends caused the decreases, and meeting new people on the job caused the increases.

Effect on Spare-Time Activities

Nonfarm work decreased spare-time activities. More than one-third (36 percent) reported changes, with decreases outnumbering increases almost nine to one. Decreases were due to less time at home and to greater physical demands of the nonfarm job. Several persons reported that they were just too tired after working to do anything but rest. On the other hand, some people apparently either had more spare time or found more

activities to occupy spare time after taking a nonfarm job.

INDIRECT WAGE EFFECTS ON THE FARM BUSINESS

By increasing the demand for labor, industrialization in a rural area may increase the level of wage rates, including wages paid hired farm workers. An increase in the relatively scarcity of labor may induce adjustments in resources, output and income on farms hiring substantial amounts of labor. For rural communities experiencing net out-migration, the supply of local labor is likely to be highly elastic over a limited range of quantity. Within this range, increases in labor demand are not likely to have much wage-raising effect. If new industry adds a large component to total labor demand in the area, however, wage rates may rise appreciably before demands are met by an influx of workers from other areas.

When asked what had been happening to farm wage rates in the community since 1951, nearly 71 percent of the farm operators in the area sample said that farm wage rates had been increasing. When asked what they thought was the reason for the increase in wage rates, 43 percent of these operators stated that nearby industrial expansion was a factor. About 41 percent gave general increases in the wage level as a cause, and 16 percent specified other reasons.

Farm operators who said farm wages had increased since 1951 were asked whether they made specific changes in their farm operations as a result of the wage increases. Nearly one-fourth of this group indicated that they reduced the amount of labor hired. About 26 percent reported an increase in the amount of farm work by themselves and family workers. Almost 48 percent stated that they increased their use of labor-saving machinery. Few changes were reported in cropping and livestock systems. The extent to which these adjustments could be attributed to the wage effect of the engine plant is not known. However, it was clear that, in the minds of a significant number of operators, the pressure for these adjustments was increased by local industrialization.

SELECTIVITY EFFECTS

When industrialization occurs in a rural area, the farm people who take nonfarm jobs are likely to have characteristics different from those who do not enter nonfarm employment. The nature of this selectivity largely depends on (1) the factors motivating farm people to offer their labor services for nonfarm work and (2) the nature of the newly created demands for nonfarm labor.

An offer of labor services for nonfarm employment may be prompted by a desire to improve personal or family position through greater income, better working conditions, higher status occupation or more congenial social environment. If the community is predominantly

agricultural, the offer also may be associated with willingness to deviate from some of the basic norms of the community. The end or goal of the offer—improvement of personal or family status—may be supported by societal norms, but the means—taking a nonfarm job—may not be universally approved. Thus, restraining factors may include the costs of deviation from norms and consequent alienation from established associations. Obviously, those persons offering their labor for nonfarm employment expect the benefits to outweigh the costs.

The most frequent reason reported for deciding to take a nonfarm job was the desire for additional income, but the primary reasons for not trying to get a nonfarm job were related to restraints imposed by a commitment to farming as the preferred occupational role in the community. A few gave health reasons, but several who had taken nonfarm employment also said they had done so because of health. Those who gave health as a reason for not seeking nonfarm employment probably belong with those who said that they did not have the qualifications for the nonfarm jobs available.

When the desire for greater income is the prime motivating factor, it follows that farm people who offer their labor services for nonfarm work anticipate an increase in their incomes. This implies that the marginal return to labor is smaller in the farm business than in nonfarm work. The larger this differential, other things being equal, the greater will be the pressure to find a nonfarm job. Thus, people experiencing a low marginal return to their labor in the farm business are likely to offer their labor services for nonfarm employment more frequently than those experiencing a high marginal return.

Under given price and cost conditions, the marginal return to operator and family labor on the farm is closely associated with the effective quantities of land and capital combined with labor. Within limits, the more land and capital that are combined with labor, the greater is the marginal return to labor. Consequently, offers of labor services for nonfarm employment may be expected to come most frequently from families on farms with the smallest effective input of land and capital. The frequency of such offers may be expected to diminish as the effective input of land and capital increases.

When farm price conditions are favorable, people on well-organized farms (units with relatively large amounts of land and capital in relation to labor) will earn labor returns as high or higher than those offered by nonfarm employment. When farm prices are highly unfavorable, labor returns, even on well-organized farms, will fall below those in nonfarm jobs. Under these circumstances, some operators and other family members on farms with large amounts of land and capital may offer their labor services for nonfarm employment. Nevertheless, the frequency of such offers

is likely to be much lower than among families on farms with smaller amounts of land and capital. Thus, the opening of nonfarm employment opportunities in a rural area is likely to attract a larger proportion of farm people with low incomes and small amounts of land and capital than of those with high incomes and large amounts of land and capital.

Commitment to farming as an occupation is likely to be directly related to the investment in land and capital. It is also likely to be related to investment in skills produced by training and experience in farming and to the degree of identification with farm-oriented reference groups. Each of these factors tends to be related, in turn, to age. Older farm operators have had more time to accumulate capital, have more experience and are likely to have stronger identifications with farming than younger farmers. At the same time, family responsibilities and, therefore, the demand for income may be greater for younger families. Furthermore, younger persons are less firmly established in the social life of the community. They are more likely to be frustrated in their efforts to obtain material and social satisfaction within the established social structure. Therefore, they may be more willing to deviate from community norms.

High mobility and consequent newness to the local community, extensive experience outside the community and training for nonfarm employment are likely to have the same effect as younger age on commitment to farming. Thus, it may be expected that the younger, more mobile farm operators and farm wives would be more likely to seek nonfarm employment than the older, less mobile farm operators and farm wives.

Selectivity also may arise because of geographical location. Industrial development tends to be urban centered. Commuting costs vary directly with the distance between the employee's residence and the point of employment. Other things being equal, farm people who live near the point of job opportunities are likely to offer their labor services more frequently than those who live farther away. If certain operator, family, farm and household attributes exhibit important geographical variation, these attributes are likely to be different for farm people with nonfarm jobs than for those without nonfarm employment.

Typically, newly created demands for labor will be more or less specific—firms will want workers with certain characteristics. Some people will be better able to meet these demands than others. Those who do not possess the attributes demanded will not be hired even if they offer their services. Thus, the hiring policies of employers partly determine the kind of selectivity that accompanies industrialization. If these policies favor younger workers over older workers, males over females or workers with previous nonfarm work experience over those with no nonfarm work experience, farm people with nonfarm jobs are likely to differ

with respect to these attributes from those without nonfarm employment.

When farm families whose spouses had nonfarm jobs were compared with those whose spouses did not have nonfarm employment, a number of differences were identified. Some differences, such as differences in age, are clearly the result of selectivity, but most of the differences noted could be the result of selectivity, employment effects or both. In the preceding section, the employment effects were identified independently of such comparisons. By now comparing the employment effects with the original differences, a basis is provided for appraising the selectivity effects.

Personal and Family Characteristics

Personal characteristics

Data presented in table 12 show that farmers with CEC jobs in 1957 averaged nearly 8 years younger than full-time farmers. Similarly, farm wives with CEC employment averaged 5 years younger than farm wives with no nonfarm employment. The youngest group of husbands and wives was that in which both had CEC jobs in 1957. Since age is independent of nonfarm employment effects, it may be concluded that the operators and wives who were drawn into CEC employment were younger than the population of operators and wives.

Table 12. Personal characteristics of farm operators, by nonfarm employment status in 1957.

Characteristic	Operators with no nonfarm jobs (N = 132)	Operators with CEC jobs (N = 88)
Age in years	48	40
Years of schooling completed	10	10
Years of farm experience	21	13
Percent owning all or part of land operated	78	69
Percent with special training for farming	14	17
Percent with special training for nonfarm jobs	13	30

Apparently, there was little, if any, selectivity with respect to general educational background. However, operators who were drawn into CEC employment had more training both for farming and nonfarm jobs than the population of farm operators.

Residential stability is one of several measures of the extent of extra-community experience that might influence the decision to seek nonfarm work. Employment at nonfarm work also may influence residential stability. Farm households with one or both spouses employed at nonfarm work had made twice as many moves in the 7½ years preceding the survey as had households with neither spouse employed at nonfarm work. Since no one gave a job as the reason for a move, it may be assumed that the difference was largely one of selectivity.

Other extra-community experiences observed were (1) time spent in the armed forces and (2) training for nonfarm jobs. The latter may have been obtained without leaving the community, but since it has the same effect as living outside the community in ac-

quainting a person with nonagricultural knowledge and skills, training for nonfarm jobs is included as a mobility factor.

Over twice the proportion (45 percent) of farm operators with CEC jobs had been in the armed forces as had full-time farmers. Farm operators with other nonfarm employment, an older group, were more like full-time farm operators in this respect.

Table 12 also shows that farm operators with CEC employment during 1957 were more than twice as likely to have had special training for nonfarm work. The variation among farm wives was not as great, but wives with nonfarm employment were 1½ times more likely to have had training for a job other than home-making than were wives without nonfarm jobs.

Responses to a series of six statements regarding farm work and a like number of statements regarding industrial work provide some clues to possible attitudinal differences between farm husbands and wives who took nonfarm jobs and those who did not. Since these responses were all obtained at the time of the interviews, it is not possible to accurately identify selectivity and employment effects. The general stability of attitudes over time and the fact that length of employment was not associated with differences in attitude toward industrial work, however, suggest that most of the observed differences were the result of selectivity.

The attitude of farm husbands and wives with nonfarm work experience toward farming as measured by a score constructed from the responses to the six farm-work items were only slightly less favorable to farming than were the attitudes of husbands and wives who had not had nonfarm employment. But the attitudes toward industrial work for the two groups were widely different. This difference could have been partly an employment effect, but, if so, it was registered in the first few months of employment because those farm operators who had worked at nonfarm jobs for less than 1 year were just as favorable to industrial work as were those who had worked from 4 to 8 years (table 13). Attitudes of farm wives did, however, become more favorable with longer nonfarm work experience. Thus, it appears that, among husbands at least, those with more favorable initial attitudes toward industrial work tended to be employed at nonfarm jobs more frequently than those with less favorable initial attitudes.

Family characteristics

The presence of children in the home would tend

Table 13. Mean farm and industrial work attitude scores of farm husbands and wives, classified by number of years of work experience at CEC.

	Less than 1 year	1 to 3 years	4 to 8 years	None
Husbands				
Farm-work score	23.7	23.9	23.9	24.5
Industrial-work score	19.0	18.8	19.1	16.4
Wives				
Farm-work score	23.0	22.6	23.4	24.3
Industrial-work score	18.0	20.1	22.7	16.8

to increase the need for income, and needed income was the main reason for taking nonfarm work. On the other hand, the presence of children, particularly preschool children, may make it more difficult for the farm wife, especially, to hold a nonfarm job.

Comparison of size of family indicates that both factors were operative. The average number of persons in families with only the wife employed at nonfarm work was only slightly higher than the average of families with no nonfarm work, 4.6 compared with 4.5. The average size for families with both spouses employed was still higher, 4.8, and the average for families with only the husband employed at nonfarm work was the highest at 5.2. Two-fifths of the "no-nonfarm-employment" families had children of preschool age, compared with only 26 percent of the families with only the wife employed and 55 percent of the families with only the husband employed at nonfarm work. Families with both spouses employed were intermediate, with 45 percent having preschool children. This would seem to indicate that the presence of preschool children is a deterrent to nonfarm employment of the wife. However, data on the stage in the family life cycle at the time the wife first began to work indicates that 55 percent began working at nonfarm jobs when there was a preschool child in the home.

Family organization

In the following analysis, the pattern of family organization in families where neither husband nor wife was employed at a nonfarm job is viewed as the "norm." Family organization in three groups of families with nonfarm employment are compared with the norm. They are: (1) "husband only" employed, families with only the husband employed at nonfarm work; (2) "wife only" employed, families with only the wife employed at nonfarm work; and (3) "both employed," families with both husband and wife employed at nonfarm jobs. Patterns in families with husband only, wife only or both employed at nonfarm jobs are examined for evidence of variation from the norm.⁸ By accounting for that part of the variation from the norm pro-

⁸ In the "husband only" and "wife only" group, all were employed at CEC. In the "both employed" group, there were 16 in which both husband and wife were employed at CEC, five in which the wife was employed at CEC but the husband at another nonfarm job and 11 in which the husband had a CEC job, but the wife had a non-CEC job.

duced by the effect of the nonfarm job, an estimate of at least the direction of the selectivity effect was obtained.

Family decision-making

Two measures were used to analyze variation in seven areas of decision-making: (1) husband's power index score which measures relative power of the spouses in decision-making and (2) frequencies of husband dominance, wife dominance or equal sharing which measure the pattern of dispersion of authority. Power scores are discussed first.

Generally, the relative power of husband and wife in decision-making, as measured by the husband's power score, in families with one or both spouses employed at nonfarm work was not very different from the norm, represented by farm families with no nonfarm work (table 14). With but two exceptions, indexes for specific decisions did not vary significantly from the norm. Both exceptions were in a minus direction; i.e., husband's power was lower in families with nonfarm work. One occurred among families with wife only employed and one among families with both spouses employed. Although other differences were not large enough to be significant, most of them were in the direction of greater power in decision-making for the spouse with the nonfarm employment.

The amount of variation from the norm differed according to who had the nonfarm employment. Families with husband only employed differed least from the norm. None of these differences were large enough to be significant, but, for six of the seven decisions, differences were in a positive direction, and the average index for all decisions was slightly higher—suggesting a tendency for nonfarm employment of the husband to be associated with increased power of the husband in family decision-making. Employment of the wife, on the other hand, was associated with lowered husband's power. Although only one difference was statistically significant, variations from the norm were negative in four of the seven decisions, and the average difference was negative. Among families with both spouses employed at nonfarm work, variations from the norm were equally balanced in both directions, with the average index slightly lower.

Table 14. Husband's power score, by nonfarm employment status of husband and wife.

Decision	Norm (neither spouse employed)	Nonfarm employment status					
		Husband only		Wife only		Husband and wife	
		Husband's score	Deviation from norm	Husband's score	Deviation from norm	Husband's score	Deviation from norm
To call a doctor	2.74	2.75	+ 0.01	2.55	- 0.19	2.16	- 0.58*
How much to spend for food	2.07	2.20	+ 0.13	1.93	- 0.14	2.09	+ 0.02
Purchase of major appliance or furniture	3.12	2.98	- 0.14	2.63	- 0.49*	3.09	- 0.03
Major punishment for children	2.79	2.87	+ 0.08	2.86	+ 0.07	2.79	0.00
To visit friends or relatives	2.87	2.88	+ 0.01	2.93	+ 0.06	2.97	+ 0.10
To attend movies or other entertainment affairs	2.90	2.96	+ 0.06	2.83	- 0.07	2.84	- 0.06
Spending money for children	2.84	3.13	+ 0.29	3.00	+ 0.16	3.14	+ 0.30
Husband's mean power	2.76	2.86	+ 0.10	2.68	- 0.08	2.73	- 0.03

* Differences significant at the 95-percent level.

Variations in patterns of dispersion of responsibility for decision-making also were not large. The modal pattern in families without nonfarm work for six of the seven decision areas was equal responsibility of the husband and wife. From 71 to 80 percent of the cases were in this category. For the seventh decision area, the wife dominated in 54 percent of the families, even though equal responsibility was the pattern for 45 percent. The tendency for nonfarm employment to increase the decision-making responsibility of the spouse employed, particularly the wife, is illustrated by the fact that, in families with only the wife employed, frequency of wife dominance was higher by 4.5 percentage points, husband dominance was lower by 1.6 percentage points, and equal sharing was lower by 2.8 percentage points (table 15). Nonfarm employment of the husband was accompanied by a small increase in frequency of husband dominance but also a small increase in wife dominance. Nonfarm employment of both increased the frequency of both wife dominance and husband dominance but increased wife dominance the most.

The tendency for nonfarm employment of either spouse to be associated with greater dominance of the wife in family decision-making also was evident in the data for decisions on how much to spend for food, a decision more typically the wife's responsibility in full-time farm families (table 16).

Most of the changes made in decision-making because of nonfarm employment were increases in power and frequency of dominance by the spouse employed and decreases in frequency of equal sharing of responsibility. Because the exact nature of a change caused by nonfarm employment was not always given, it was impossible to make an exact accounting of such changes and thus arrive at a residual difference which could be labeled as a selectivity difference. Where no changes or very few changes were made because of

nonfarm employment and yet the difference in power scores and the frequency of wife or husband dominance were substantial, however, it was evident that selectivity was involved.

In general, changes caused by nonfarm employment were insufficient to account for observed differences between families with and families without nonfarm employment. Thus, a reasonable hypothesis is that families who take nonfarm employment are families in which the wife normally has more power and takes more responsibility for decision-making. Evidence to support this was greatest in decision-making areas that involve the use of family funds, such as how much to spend for food, calling the doctor and purchasing a major appliance or piece of furniture. To illustrate, none of the families with wife only employed at nonfarm work reported changes in who decides how much to spend for food; yet, the frequency of wife dominance was substantially greater (69 percent compared with 53.6 percent) among these families than among families with neither spouse employed at nonfarm work (table 16). Similarly, only one family reported a change in who made the decision to purchase a major appliance because of the wife's nonfarm work, but the husband's power index for families with only the wife employed differed more from the norm than could be accounted for by a change by one family (table 15). Also, none of the families with both spouses employed reported change in who called the doctor, but the husband's power index for this group was significantly lower than the norm (table 14).

Household tasks

An index of the wife's task performance and percentage distributions of husband or wife dominance or sharing were used as measures of distribution of responsibility for tasks. In table 17, the 21 tasks observed are arranged in descending order according to the

Table 15. Distribution of responsibility for six decisions^a typically shared by husband and wife, by which spouse was employed at nonfarm work.

Spouse employed at nonfarm work	Average percentage of families reporting each of three patterns		
	Wife decides always or more frequently than husband	Wife and husband decide equally	Husband decides always or more frequently than wife
Neither	15.6	74.5	9.8
Wife only	20.1	71.7	8.2
Husband only	16.2	72.1	11.7
Both	19.7	68.6	11.6

^a Calling the doctor when someone is ill, purchasing major appliances or furniture, giving the children spending money, major punishment for children, visiting friends or relatives and attending movies.

Table 16. Distribution of responsibility for decisions on how much to spend for food, by which spouse was employed at nonfarm work.

Spouse employed at nonfarm work	Percentage of families reporting each of three patterns		
	Wife decides always or more frequently than husband	Wife and husband decide equally	Husband decides always or more frequently than wife
Neither	53.6	45.1	1.2
Wife only	69.0	27.6	3.4
Husband only	51.9	48.1	0.0
Both	56.3	43.8	0.0

Table 17. Index of family task performance of wives, by spouse's nonfarm employment status.

Task	Nonfarm employment status						
	Norm (neither spouse employed)	Husband only		Wife only		Husband and wife	
		Index of wife	Deviation from norm	Index of wife	Deviation from norm	Index of wife	Deviation from norm
Seeing that children wear right clothing	4.96	4.90	− 0.06	4.81	− 0.15	5.00	+ 0.04
Family wash	4.84	4.82	− 0.02	4.46	− 0.38*	4.89	+ 0.05
Getting children ready and off to school	4.75	4.88	+ 0.13	3.67	− 1.08*	4.92	+ 0.17
Getting breakfast	4.73	4.46	− 0.27	4.26	− 0.47*	4.13	− 0.60*
Dishes of main meal	4.72	4.76	+ 0.04	4.44	− 0.28	4.65	− 0.07
Picking up	4.65	4.67	+ 0.02	4.31	− 0.34*	4.78	+ 0.13
Reading to children	4.32	4.32	0.00	4.43	+ 0.11	4.22	− 0.10
Helping children with homework	4.22	4.31	+ 0.09	3.73	− 0.49*	4.39	+ 0.17
Gardening	4.13	4.48	+ 0.35*	1.12	− 3.01*	3.25	− 0.88*
Care of chickens	4.11	4.53	+ 0.42*	3.81	− 0.30	4.17	+ 0.06
Seeing that children go to bed	3.95	4.76	+ 0.81*	2.90	− 1.05*	4.25	+ 0.30
Shopping for groceries	3.79	3.81	+ 0.02	4.09	+ 0.30	4.00	+ 0.21
Taking children to doctor or dentist	3.54	3.82	+ 0.28	4.13	+ 0.59*	4.12	+ 0.58*
Care of yard and lawn	3.22	3.50	+ 0.28	2.61	− 0.61*	2.55	− 0.67*
Settling children's arguments	3.12	4.05	+ 0.93*	3.11	− 0.01	3.00	− 0.12
Keeping records	2.84	3.43	+ 0.59*	3.47	+ 0.63*	3.04	+ 0.20
Paying bills	2.54	2.86	+ 0.32*	3.13	+ 0.59*	4.10	+ 1.56*
Planning savings	2.53	2.64	+ 0.11	3.14	+ 0.61*	3.07	+ 0.54*
Fixing broken items	2.22	2.23	+ 0.01	2.28	+ 0.06	1.80	− 0.42*
Other chores	2.12	2.69	+ 0.57*	2.77	+ 0.65*	2.16	+ 0.04
Field work	1.68	1.67	− 0.01	1.58	− 0.10	1.61	− 0.07

* Difference significant at the 95-percent level.

extent to which wives in families with neither spouse employed at nonfarm work took major responsibility for the task. Two columns of figures are presented for each nonfarm employment category, the first is the mean task performance index, and the second is the deviation from the corresponding index for the families with neither spouse employed, referred to as the "norm."

Among families with only the husband employed at nonfarm work, most of the deviations from the norm (16 of 21) were in a plus direction, indicating greater frequency of task performance by the wife. Seven differences were significant, and all were in a plus direction. Among families with only the wife employed, most of the deviations (13 of 21) were in a minus direction, indicating less frequent performance by the wife. Thirteen differences were significant—eight minus and five plus. Deviation from the norm in families with both spouses employed displayed an intermediate pattern. Although the distribution of all differences was more like the pattern for families with only the husband employed, the distribution of significant differences was more like the pattern for families with only the wife employed.

Nonfarm employment tends, on balance, to be associated with greater performance of household tasks by husbands. Significant plus differences, an indication

of greater husband participation, outnumber significant minus differences 15 to 12, and the plus differences are concentrated in the tasks in the middle index range (shared tasks), while the minus differences are concentrated more in the wife-dominated tasks. Thus, in general, families with nonfarm employment present a more equalitarian pattern of task distribution than families without nonfarm employment.

Variations in frequency of sole performance by one spouse and frequency of sharing were examined for further evidence of selectivity. Rather than consider them independently, tasks were grouped according to the performance pattern in families with neither spouse employed at nonfarm work. Of the 21 tasks, 13 could be described as typically performed exclusively by the wife, although four of these 13 were also shared in many families. Four tasks typically were performed by the husband, and four were typically shared.

Families with husband only employed at nonfarm work differed very little from families with neither spouse employed in the distribution of responsibility for the nine tasks clearly in the wife-dominated category. Nonfarm employment of the wife, however, was associated with a lower frequency of performance of these tasks by the wife and a higher frequency of performance by the husband (table 18). Furthermore, employment of the wife was associated with greater

Table 18. Percentage of families reporting each of five patterns of distribution of responsibility for nine tasks^a typically performed by the wife, by which spouse was employed at nonfarm work.

Spouse employed at nonfarm work	Wife only or wife and other person responsible	Wife and husband responsible	Husband only or husband and other person responsible	Other person only responsible	No one responsible
Neither	75.2	6.9	3.0	11.1	3.8
Wife only	51.3	10.2	6.8	22.9	8.9
Husband only	78.5	6.6	1.1	9.2	4.6
Both	58.6	6.6	2.4	24.7	7.6

^a Preparing breakfast, doing dishes for day's main meal, doing the family washing, picking up and putting away clothing, getting children ready and off to school, seeing that children wear the right clothing, helping children with homework, reading to children and care of poultry.

participation of other persons and more instances where the tasks were not performed by anyone.

Families with both spouses employed most closely resembled families with wife only employed. This would follow from the observation that the husband's employment is associated with little change in the performance of these tasks.

Patterns of variation in responsibility associated with employment of one or both spouses in four tasks for which the distribution approached a bimodal pattern in farm families with no nonfarm employment resembled the patterns for the nine wife-dominant tasks but were sufficiently different to justify considering them separately.

In this case, employment of either the husband or wife alone at nonfarm work was associated with a lower frequency of task performance by the employed spouse, a lower frequency of sharing and a higher frequency of performance by the spouse not employed. Employment of both spouses was associated with decreased frequency of sharing and an offsetting increased frequency of delegating the task to another person (table 19).

For tasks typically shared by husbands and wives, employment at nonfarm work was associated with less sharing and less sole performance by the wife, regard-

less of who had the nonfarm work. Frequency of sole performance by the husband was not greatly affected, but it tended to be less in families with the husband employed at nonfarm work (table 20). Families with both spouses employed varied the least from the norm.

Variations from the norm for the four tasks typically performed by the husband, differed from those found in the other three categories in that both employment of the husband only and employment of the wife only were associated with increased frequency of wife dominance and lowered frequency of husband dominance and of sharing (table 21). Nonfarm employment of both spouses was associated with markedly less frequent sharing and with some increase in frequency of dominance by either spouse.

In general, the changes in task performance caused by nonfarm employment, as reported in the section on effects of nonfarm employment, were in the direction of the differences observed in the comparisons noted in this section. In other words, employment effects account for many of the observed differences between families with different employment situations, but not for all. Evidence of selectivity is best illustrated by examination of the pattern for individual tasks.

The task of keeping records was typically the husband's responsibility in families with neither spouse

Table 19. Percentage of families reporting each of five patterns of distribution of responsibility for four tasks^a typically performed by the wife but also frequently shared by husband and wife, by which spouse was employed at nonfarm work.

Spouse employed at nonfarm work	Wife only or wife and other person responsible	Wife and husband responsible	Husband only or husband and other person responsible	Other person only responsible	No one responsible
Neither (norm)	51.0	38.5	8.1	2.4	0.0
Wife only	54.3	26.7	14.3	2.8	1.9
Husband only	65.5	24.5	7.5	2.5	0.0
Both	47.7	30.6	8.1	10.8	2.7

^a Seeing that children go to bed, taking child to doctor, shopping for groceries and gardening.

Table 20. Percentage of families reporting each of five patterns of distribution of responsibility for four tasks^a typically shared by husband and wife, by which spouse was employed at nonfarm work.

Spouse employed at nonfarm work	Wife only or wife and other person responsible	Wife and husband responsible	Husband only or husband and other person responsible	Other person only responsible	No one responsible
Neither	14.1	51.2	23.9	8.6	2.1
Wife only	25.4	39.5	25.4	7.9	1.8
Husband only	27.6	38.8	19.6	12.1	1.9
Both	21.2	46.6	21.2	7.6	3.4

^a Settling children's arguments, taking care of the yard, planning the family savings and paying bills.

Table 21. Percentage of families reporting each of five patterns of distribution of responsibility for four tasks^a typically performed by the husbands, by which spouse was employed at nonfarm work.

Spouse employed at nonfarm work	Wife only or wife and other person responsible	Wife and husband responsible	Husband only or husband and other person responsible	Other person only responsible	No one responsible
Neither	12.5	24.7	54.2	6.2	2.2
Wife only	26.0	12.2	49.6	11.4	0.8
Husband only	25.0	19.6	50.4	3.6	0.9
Both	15.0	14.2	60.0	6.7	4.2

^a Fixing broken things, keeping records, field work and chores other than care of chickens.

employed at nonfarm work, but record keeping was performed more frequently by the wife in families where either or both were employed at nonfarm work. Since no families reported this type of change due to nonfarm work, it may be assumed that nonfarm employment was selective on performance patterns for this task. Families in which wives more frequently perform tasks typically reserved for the husband could be described as more equalitarian. Families of this type apparently are more likely to take nonfarm employment. To a lesser extent, the same kind of selectivity was observed for paying bills, a task typically shared by both spouses.

Corollary evidence of an association between equalitarian patterns and the tendency toward taking nonfarm employment was found in the relationship between nonfarm employment and age of spouse. Spouses in families with nonfarm employment were significantly younger on the average than spouses in families without nonfarm employment. Evidence from this study and from other studies indicates that relationships between younger husbands and wives, tend to be more equalitarian.⁹

Social participation

Differences between farm families without nonfarm work and families with nonfarm work were small when measured by median number of organizations per family or by median social participation score. Families with both spouses employed at nonfarm work were the most active, and those with only the husband employed were the least active (table 22).

Nonfarm employment effects were fairly evenly balanced between decreases and increases for families with only one spouse employed. The small differences shown in table 22 may, therefore, be assumed to reflect selectivity effects. The effect was greater in families

with husband only employed than in families with wife only employed, but in neither case was the effect very large.

Nonfarm employment effects in families with both spouses employed were nearly twice as likely to be decreases. Since activity rates of these families were higher than the norm, it appears that the likelihood of employment of both spouses was greater for farm families with high social participation rates.

Informal social participation

Farm families with neither spouse employed at nonfarm work visited regularly with a larger number of families than did families with nonfarm work, but families with only one spouse employed at nonfarm work visited more often than either those with neither or those with both spouses employed (table 23). Since nonfarm employment had the net effect of decreasing both the number of families visited and the frequency of visiting, employment of one spouse only tended to be selective on frequency of visiting.

Families with nonfarm employment were less inclined to limit their visiting to relatives, and visiting was less confined to an area identified by them as their home neighborhood.

Although these differences are not great, the fact that families with both spouses employed visited more with nonrelative families and more with families in other neighborhoods adds to the evidence presented elsewhere in this report, that such families are more mobile and less attached to the local area. The greater amount of time both spouses in such families spent away from home would tend to lessen ties with friends in the residential neighborhood and to increase the importance of contacts with persons on the job who may live in other neighborhoods.

Spare-time activities

Three different spare-time activities were observed: hobbies, attending movies and watching television.

Table 22. Median organization memberships and median social participation scores of farm families, classified by spouse's nonfarm employment status.

	Nonfarm employment status					
	Neither (norm)	Husband only	Deviation from "norm"	Wife only	Deviation from "norm"	Husband and wife
Median number of organization memberships of husband and wife	4.2	3.6	-0.6	3.8	-0.4	4.4
Median family social participation score	7.1	6.5	-0.6	7.0	-0.1	7.7
						+0.06

Table 23. Median number of families visited with regularly and median frequency of visits per month by spouse's nonfarm employment status.

	Spouse's nonfarm employment status					
	Neither (norm)	Husband only	Deviation from "norm"	Wife only	Deviation from "norm"	Husband and wife
Median number of families visited regularly	3.8	2.6	-1.2	3.1	-0.7	2.9
Median frequency of visits per month	4.1	4.8	+0.7	4.2	+0.1	3.8
						-0.4

Table 24. Percentage of husbands and wives with hobbies, median frequency of attendance at movies per month and median number of hours watching television per week, by employment status.

	Spouse's employment status			
	Neither	Husband only	Wife only	Husband and wife
Percent with hobbies:				
Wife	62.9	73.2	67.7	66.3
Husband	55.0	62.5	64.5	71.9
Median attendance at movies:				
Wife	1.5	1.8	2.7	2.5
Husband	1.1	1.4	2.7	2.3
Median hours watching TV:				
Wife	15.3	16.4	13.0	13.0
Husband	14.0	9.5	15.8	9.6

Husbands and wives in families with nonfarm work attended movies more frequently and were more likely to have hobbies than husbands and wives in families without nonfarm work. With regard to watching television the spouse with the nonfarm work in families with only one employed watched less, but the spouse not working at a nonfarm job watched more. In families with both employed at nonfarm work, both watched television less (table 24). Despite the fact that nonfarm employment tended to cause decreases in spare-time activities, families with nonfarm work reported more of these activities than families without nonfarm work.

Income

In 1957, farm families with farm operators employed at the engine plant had substantially lower incomes from farming, much higher incomes from nonfarm sources and moderately higher total incomes than did full-time farm operator families (table 25). Were these original differences (selectivity effects), or were they the result of the nonfarm jobs held by part-time operators? The evidence on nonfarm employment effects indicated that operator nonfarm employment had a relatively small effect on the level of income from farm sources. However, nonfarm employment induced a relatively large increase in income from nonfarm sources.

It may be concluded, therefore, that the difference in income from farm sources was largely a selectivity effect (an original difference), whereas the difference in income from nonfarm sources was almost completely a nonfarm employment effect. The moderate difference in total income was the result of both selectivity and nonfarm employment effects, with the nonfarm employment effect probably predominating.

For operators with CEC jobs, the level and composition of family income tended to be related to the

proportion of total work time spent at nonfarm employment. The level of family income increased with increases in the proportion of work time spent at CEC jobs. Also, the proportion of total income obtained from farming decreased, and the proportion obtained from nonfarm sources increased as the proportion of total work time spent at CEC jobs rose. These relationships are consistent with the income differences between operators with CEC jobs and those with no nonfarm employment.

It appears that the increase in nonfarm employment opportunities in the area was accompanied by a selection process whereby operators of low-income farms tended to take nonfarm jobs more frequently than did operators of high-income farms. As a consequence, lower-income families tended to experience more of the income effects of industrialization than did higher-income families. Apparently, the net effect was a reduction in income inequality among farm families in the area.

Farm Business

Data presented in table 26 show that farmers with CEC jobs produced less total farm output and employed smaller inputs of land, labor and capital than did full-time operators. Farm operators with CEC jobs also had smaller livestock enterprises and devoted a smaller proportion of land to high valued crops. The evidence on nonfarm employment effects indicates that most of these differences existed at the time the farm operators took nonfarm jobs.

About 63 percent of the operators with CEC jobs reported no change in farm output as a result of nonfarm employment. Decreases were reported by 36 percent. While nonfarm employment had some farm output reducing effect, most of the difference in output levels between farm operators with nonfarm jobs and full-time farm operators undoubtedly existed at the time farmers took jobs at the engine plant.

Likewise, differences in land use were largely original differences (selectivity effects) rather than the effect of nonfarm employment. Comparatively few farmers reported changes in land use because of nonfarm jobs. Therefore, it may be concluded that operators who took nonfarm jobs tended to come from farms with fewer total acres and a smaller proportion of land in corn, oats and soybeans than was typical for units in the area.

Table 25. The 1957 income characteristics of farm households, by 1957 employment status of operator.

Income characteristic	Operators with no nonfarm jobs	Percent of total work time at CEC by operators with CEC jobs			
		1-39 percent	40-59 percent	60-99 percent	Total
	(N=132)	(N=20)	(N=44)	(N=24)	(N=88)
Net money income from farming	\$4,042*	\$2,063	\$1,516	\$ 683	\$1,406*
Value of home-used products	674	468	542	290	455
Income from nonfarm sources	752	3,005	4,493	5,550	4,460
Total	5,368*	5,536	6,551	6,523	6,321*

* Difference between operators with no nonfarm jobs and operators with CEC jobs significant at the 95-percent level.

Table 26. Mean values of 1957 farm business characteristics, by operator's nonfarm employment status.

Characteristic	Operators with no nonfarm jobs (N=132)	Percent of total work time at CEC by operators with CEC jobs			
		1-39 percent (N=20)	40-59 percent (N=44)	60-99 percent (N=24)	Total (N=88)
Size of business and resources					
Total value of farm products sold	\$13,030	\$5,263	\$4,209	\$1,738	\$3,758
Total acres	190	184	141	74	133
Crop acres	118	100	72	34	68
Investment in power machinery and equipment	6,770*	5,375	5,036	1,658	4,192*
Total hours of labor input	5,263	3,587	3,318	2,360	3,118
Hours of hired labor	109	60	97	24	69
Land use					
Percent in corn, oats and soybeans	44	31	28	25	29
Percent in crops	62	54	51	45	51
Percent in permanent pasture	24	20	28	26	25
Percent in woods, waste, farmstead and other uses	14	26	21	29	24
Livestock inventory, Dec. 1					
Number of beef cows	8.4	9.8	7.2	2.6	6.5
Number of milk cows	9.3	7.4	7.4	2.0	6.0
Number of other cattle	27.6	7.3	8.6	4.4	7.1
Number of hogs	79	43	31	18	30
Livestock production					
Sows farrowed	16.0	10.0	6.5	2.8	6.3
Calves born	15.7	14.9	11.2	3.6	10.0
Ewes lambing	1.9	5.0	0.8	0.6	1.7
Chickens raised	134	101	56	46	64

* Difference between operators with no nonfarm jobs and operators with CEC jobs significant at the 95-percent level.

As mentioned earlier, operator nonfarm employment probably increased capital input slightly on part-time farms. About 24 percent of the part-time operators reported using more, while only 3 percent reported using less, labor saving power and machinery as a result of nonfarm employment. Nearly 22 percent of the uses reported for the additional income from nonfarm jobs was for investment in the farm business. It is likely, therefore, that the difference in capital input between part-time units was somewhat larger at the time the former full-time operators took nonfarm jobs than it was in 1957. Thus, it seems clear that operators from farms with small amounts of capital tended to be drawn into CEC employment more frequently than were those farms with large amounts of capital.

Since nonfarm employment had a greater effect on labor than on other resources, the selectivity effects are more difficult to disentangle. Farm operators with jobs at the engine plant spent slightly more hours at income-generating activities in 1957 than did full-time operators (table 27). While farmers with CEC jobs devoted nearly 50 percent of their time to nonfarm work, they spent only 56 percent as much time at farm work as full-time farmers. However, 63 percent of the operators who took CEC jobs reported a decrease in time spent at farm work as a result. Since practically all others reported no change, the original difference in operator labor input in the farm business was less than the post-nonfarm employment difference. Nevertheless, it is unlikely that the nonfarm employment

Table 27. Mean hours of farm household labor used for income-producing activities in 1957, by operator's nonfarm employment status.^a

Worker and type of work	Operators with no nonfarm jobs (N=132)	Percent of total work time at CEC by operators with CEC jobs			
		1-39 percent (N=20)	40-59 percent (N=44)	60-99 percent (N=24)	Total (N=88)
		(mean hours per household)			
Operator					
Work on home farm	3,370	2,812	2,028	849	1,885
Nonfarm work	0	1,040	1,927	2,104	1,774
Total	3,370	3,852	3,955	2,953	3,659
Wife					
Work on home farm	783	506	850	872	779
Nonfarm work	113	724	280	596	470
Total	896	1,230	1,130	1,468	1,249
Other household members					
Work on home farm	988	268	440	639	455
Nonfarm work	173	27	58	272	109
Total	1,169 ^b	295	513 ^b	943 ^b	580 ^b
All household members					
Work on home farm	5,141	3,586	3,318	2,360	3,119
Nonfarm work	286	1,791	2,265	2,972	2,353
Total	5,435 ^b	5,377	5,598 ^b	5,364 ^b	5,488 ^b

^a Information on household labor was obtained by type of work and type of worker. Respondents were asked to estimate the hours worked per week during each month of the year by each household member at nonfarm jobs, on the home farm and on other farms for wages. Since there is a tendency to count time spent by the operator on the home farm as time at work, the data probably overestimates the actual time spent by operators at farm work. Income producing activities include time spent at (1) farm work on the home farm, (2) work on other farms for wages and (3) nonfarm work for income, including self-employment.

^b Includes time spent at work on other farms for wages.

effect would account for the full difference. It is probable, therefore, that operators who took nonfarm jobs spent less time at nonfarm work before nonfarm employment than did typical operators in the area.

Although 44 percent of the part-time operators reported that, after taking their nonfarm jobs, their wives did more farm work, these wives did no more farm work than the wives of full-time farmers. Evidently, farm operators who took nonfarm jobs were likely to have wives who did less farm work than average. Nearly 34 percent of the CEC farmers reported that family members other than wives put in more work on the home farm as a result of the operator's nonfarm job. Even so, other family members put in more hours of farm work on full-time farms than on part-time farms. Apparently, the farm operator who took a nonfarm job was likely to have a family that contributed less labor than average to the farm business.

Although nonfarm employment increased the amount of time family members devoted to income-producing activities, it appears that the amount of family labor available for these activities was only moderately smaller before the operators took CEC employment than on other farms in the area. After the operator took nonfarm employment, the number of hours devoted to income-producing activities by all family members was not appreciably different from that on full-time farms. Since the original difference in available labor appears to have been much smaller than the original differences in land and capital, the amount of labor in relation to land and capital probably was much greater on farms where operators took nonfarm jobs. This points to a relatively low marginal return to labor, a relatively large amount of leisure time or

both. In line with the expected selectivity effects already described, the opening of nonfarm employment opportunities tended to draw a larger proportion of operators from farms with substantial unemployed or underemployed labor.

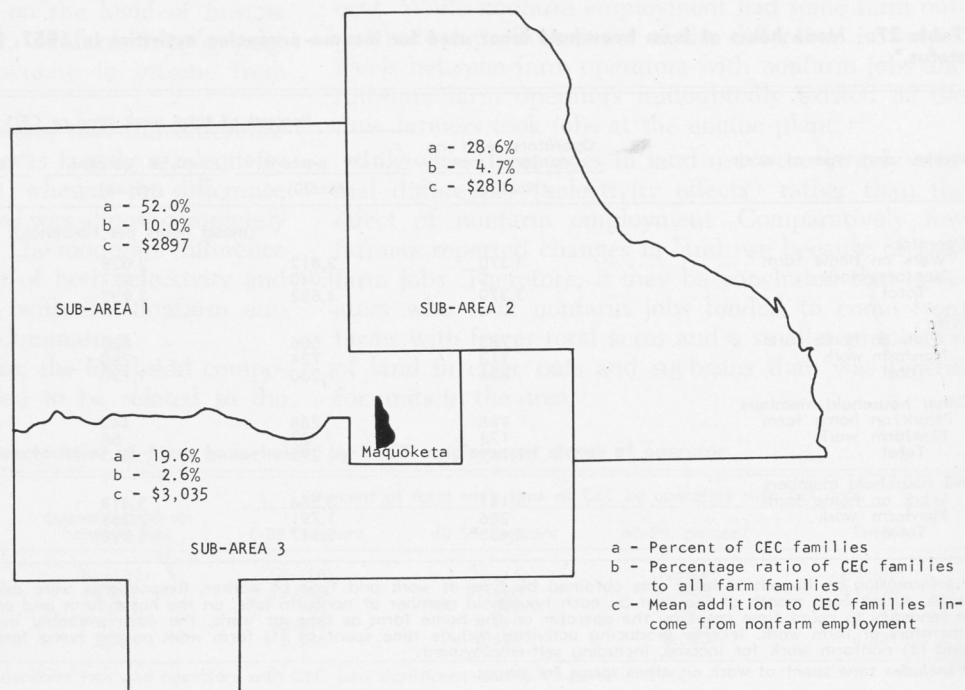
Location

The impact of employment at the engine plant on farm families was spread unevenly over the study area. This is apparent from fig. 4 which shows the geographical distribution of families with one or more spouses employed at CEC and rates of participation of all families in CEC employment. The subareas were delineated to contain roughly equal numbers of farm families.

More than half of the farm families with husbands, wives or both employed at CEC in 1957 lived in subarea 1, extending west, northwest and north of Maquoketa to the study area boundary. About 29 percent of the CEC families lived in subarea 2, extending north, northeast and east of the city to the Mississippi River. Only 19 percent lived in subarea 3, located south of Maquoketa and extending east and west. In subarea 1, about 1 of 10 families had a husband, wife or both employed at CEC. The participation rate was 1 of 21 in subarea 2 and only 1 out of 38 in subarea 3.

It appears that the differences in participation rates were largely the result of differences in income levels, commuting distance to Maquoketa and the availability of other nonfarm employment opportunities. Apparently, there were substantial subarea differences in family income before the expansion of employment opportunities in Maquoketa. In 1957, farm income per farm averaged about \$4,500 in subarea 3, \$3,500 in subarea 1 and \$2,500 in subarea 2. Since operator non-

Fig. 4. Geographical distribution of CEC families, participation rates in CEC employment and mean addition to CEC family income from nonfarm employment.



farm employment had only a small effect on income from farm sources, these figures are probably indicative of farm income differences before the impact of CEC employment. Subarea estimates of total family income per farm household, excluding income from CEC employment, suggests even larger income differences.

On the basis of income differences, the highest participation rate would be expected in subarea 2, and the lowest rate would be expected in subarea 3. While subarea 3 actually had the lowest rate, subarea 1 had a higher rate than subarea 2. A longer average commuting distance to Maquoketa and greater availability of other nonfarm employment opportunities, however, may have given less encouragement to a high participation rate in subarea 2.

When farm households were classified according to distance from Maquoketa and when participation rates were computed for each distance class, the mean participation rate declined for distances exceeding about 10 miles. Families with CEC jobs made up about 6 percent of all families at distances under 6 miles and from six to 10 miles. Evidently, commuting distance had little influence on CEC employment within 10 miles of Maquoketa. Between 10 and 20 miles, however, the rate dropped to 5 percent. For distances greater than 20 miles within the study area, the rate was less than 3 percent.

The participation rate in subarea 2 also tended to be reduced by greater availability of other nonfarm employment opportunities. Bellevue, the largest town in subarea 2, offered more nonfarm employment opportunities than any town in subarea 1 except Maquoketa. A small washing machine factory provided employment for some farm families near Bellevue. In addition, the northern section of subarea 2 was within 10 to 15 miles of Dubuque, a metropolitan city with considerable industry. Some farm families in subarea 2 were employed in this city. There were no cities of comparable size as close to subarea 1.

The evidence indicates that the expansion of industry in Maquoketa tended to reduce geographical differences in farm family income in the study area. As already indicated, there apparently were large subarea differences in farm family income before the CEC development in Maquoketa. The average addition to

family income from employment at the engine plant was almost identical in the three subareas (fig. 4). Since the participation rate was lowest in the subarea with the highest level of income, CEC employment tended to raise the average level of income more in the subareas with the lowest incomes.

Rough estimates suggest that the CEC development raised the average level of income of all farm families about \$280 per family in subarea 1, about \$130 per family in subarea 2, and about \$80 per family in subarea 3. It is estimated that the differences in the average level of farm family income between subarea 1 and subarea 3 was reduced from about \$1,470 per family to about \$1,270 per family. The difference between subarea 2 and subarea 3 was cut from about \$2,225 per family to about \$2,175 per family. But the difference between subarea 1 and subarea 2 was increased from about \$700 per family to about \$900 per family. However, the participation rate in nonfarm employment, other than CEC, tended to be higher among families in subarea 2 than in subarea 1.

VIEWS OF FARM OPERATORS ON INDUSTRIALIZATION

How did farm operators evaluate the consequences of greater industrialization in Maquoketa? Did they favor an increase in manufacturing activity in the area? To shed some light on these questions, farmers in the "area" and "list" samples were asked for their views on the benefits and costs of the CEC development and on the future expansion of manufacturing activity. Estimates were prepared for (1) all farm families, (2) farm families with husbands, wives or both employed at CEC in 1957, (3) farm families with husbands, wives or both employed at other nonfarm jobs and (4) farm families with neither husbands nor wives employed at nonfarm jobs.

The initial question was: "Do you think you and your family have gotten any benefits from the expansion in manufacturing activity in Maquoketa since 1951?" In response to this question, an estimated 30 percent of all operators answered yes, 68 percent said no and 2 percent stated that they did not know (table 28). There were large differences associated with the nonfarm employment status of husbands and wives. In families with husbands, wives or both employed at

Table 28. Response of farm operators to the question "Do you think you and your family have gotten any benefits from the expansion of manufacturing activity in Maquoketa?", by nonfarm employment status.

Response	Husband and/or wife employed at CEC job	Husband and/or wife employed at non-CEC job	Neither husband nor wife employed at nonfarm job	All operators
	(N=119) 97.5%	(N=20) 35.0%	(N=97) 23.9%	(N=2,225*) 29.8%
Yes	2.5	65.0	74.0	68.6
No	0.0	0.0	2.1	1.6
Did not know	100.0	100.0	100.0	100.0
Total				

* Weighted N.

CEC, nearly 98 percent of the operators indicated that benefits were received. In families with neither husbands nor wives employed at nonfarm jobs, only 24 percent of the respondents gave a positive answer. About 35 percent of the operators in families with husbands, wives or both employed at other nonfarm jobs stated that benefits had been received. In the latter two groups, some husbands and wives had been employed at the engine plant prior to 1957. In addition, some of the children in these families had CEC jobs.

Operators who indicated that the expansion in manufacturing activity had provided benefits for them and their families were asked to specify the kinds of benefits they had received. Most of the replies involved additional family income. A substantial proportion of the operators in families with neither husbands nor wives employed at nonfarm jobs stated that they received benefits in the form of a more progressive community.

Operators also were asked: "Do you think the expansion in manufacturing activity in Maquoketa since 1951 has cost you anything or injured you in any way?" About 12 percent of all respondents answered yes, 87 percent said no, and about 1 percent stated they did not know (table 29). Differences among the component groups were not as large as in the preceding question. Only 4 percent of the operators in families with CEC employment indicated that the expansion in manufacturing activity had entailed a cost to them. Costs were reported by 20 percent of the operators in families with husbands, wives or both employed at other nonfarm jobs. In families with neither husbands nor wives employed at nonfarm jobs, 11 percent of the operators reported costs or injury. Among families with CEC employment reporting costs, ill-health and marital trouble were mentioned as injuries suffered. The costs most frequently mentioned by other operators were "harder to get farm help" and "higher wages for farm labor."

The final question on private benefits and costs was: "All things considered, do you think you and your family have been better off, worse off or unaffected by the expansion in manufacturing activity in Maquoketa since 1951?" Almost a third of all operators stated that they were better off; about 9 percent said that they were worse off. Nearly 57 percent indicated that their position was unaffected by the expansion in manufacturing activity. About 1 percent stated they did not know (table 30).

Among families with husbands and wives employed at CEC, 93 percent of the operators reported that they were better off, and only about 2 percent reported that they were worse off. The results for families with neither husbands nor wives employed at nonfarm jobs showed that 28 percent thought they were better off, 10 percent thought they were worse off, and 60 percent thought they were not affected. The pattern of

response for families with husbands, wives or both employed at other nonfarm jobs was similar to that for families with neither husbands nor wives employed at nonfarm jobs. However, the proportion who thought they were better off was somewhat higher, and the proportion who thought they were worse off was somewhat lower, among families with husbands, wives or both employed at other nonfarm jobs.

While a minority of farm operators in the study area believed that they and their families were better off as a result of the expansion in manufacturing activity, the majority thought that their local community was better off. In response to the question, "All things considered, do you think your local community has been better off, worse off or unaffected by the expansion in manufacturing activity since 1951?", nearly 84 percent of all operators said that their local community was better off. This compares with 33 percent who stated that they and their families were better off. Only 5 percent said that their local community was worse off, and less than 12 percent stated that their local community was unaffected (table 31).

There was less variation among family groups with different nonfarm employment characteristics in the evaluation of community effects than in the evaluation of individual family effects. The proportion who thought their local community was better off was larger for operators from families with husbands, wives or both employed at CEC than for those from families with neither husbands nor wives employed at nonfarm jobs. This difference (95 percent compared with 84 percent), however, was much less than the difference (93 percent compared with 28 percent) between the two groups with respect to the proportion who thought they and their families were better off. The variation also was smaller for comparisons involving operators from families with husbands, wives or both employed at other nonfarm jobs.

Among operators from families with husbands, wives or both employed at CEC, there was little, if any, difference between the community evaluation pattern and the individual family evaluation pattern. More than 93 percent of the operators in this group thought they and their families were better off, and 95 percent thought their local community was better off. However, operators from families with neither husbands nor wives employed at nonfarm jobs and those families with husbands, wives or both employed at other nonfarm jobs had markedly different individual family and community evaluation patterns. Among operators from families with neither husbands nor wives employed at nonfarm jobs, 84 percent thought their local community was better, while only 28 percent thought they and their families were better off. For operators from families with husbands, wives or both employed at other nonfarm jobs, the figures were 75 percent and 35 percent, respectively.

On the basis of this evidence, it seems clear that

Table 29. Response of farm families to the question, "Do you think the expansion in manufacturing in Maquoketa since 1951 has cost you anything or injured you in any way?", by nonfarm employment status.

Response	Husband and/or wife employed at CEC job	Husband and/or wife employed at non-CEC job	Neither husband nor wife employed at nonfarm job	All families
	(N=119)	(N=20)	(N=97)	(N=2,225 ^a)
Yes	4.0%	20.0%	11.4%	12.3%
No	96.0	80.0	87.6	86.9
Did not know	0.0	0.0	1.0	0.8
Total	100.0	100.0	100.0	100.0

^a Weighted N.

Table 30. Response of farm families to the question, "All things considered, do you think you and your family have been better off, worse off or unaffected by the expansion of manufacturing activity in Maquoketa since 1951?", by nonfarm employment status.

Response	Husband and/or wife employed at CEC job	Husband and/or wife employed at non-CEC job	Neither husband nor wife employed at nonfarm jobs	All families
	(N=119)	(N=20)	(N=96)	(N=2,207 ^a)
Better off	93.3%	35.0%	28.2%	32.8%
Worse off	2.5	5.0	10.4	9.1
Unaffected	4.2	60.0	60.4	57.2
Did not know	0.0	0.0	1.0	0.9
Total	100.0	100.0	100.0	100.0

^a Weighted N.

Table 31. Response of farm operators to the question, "All things considered, do you think your local community has been better off, worse off or unaffected by the expansion in manufacturing activity since 1951?", classified by employment status of operator and wife.

Response	Husband and/or wife employed at CEC job	Husband and/or wife employed at non-CEC job	Neither husband nor wife employed at nonfarm jobs	All families
	(N=119)	(N=20)	(N=96)	(N=2,207 ^a)
Better off	95.0%	75.0%	84.0%	83.5%
Worse off	1.0	20.0	2.0	4.9
Unaffected	4.0	5.0	14.0	11.6
Total	100.0	100.0	100.0	100.0

^a Weighted N.

the majority of farm families in the study area approved of the expansion in manufacturing activity at Maquoketa. For most of these families, this approval apparently rested on the benefits accruing to the community, since only about a third of all operators interviewed thought that they and their families were better off.

The favorable attitude toward the CEC development was reflected in the responses to a final question on more industrialization. When asked, "Would you like to see more expansion of manufacturing activity in Maquoketa and other nearby towns in the future?", 81 percent of all respondents said yes, 18 percent said no, and 1 percent stated they did not know (table 32). Again, there was some variation among families with different nonfarm employment characteristics. Among

operators from families with husbands, wives or both employed at CEC, 97 percent favored more industrialization, and only 2 percent were opposed. Only 70 percent of the operators from families with husbands, wives or both employed at other nonfarm jobs favored more expansion of manufacturing activity, while 25 percent were against it. The pattern of response of operators from families with neither husbands nor wives employed at nonfarm jobs was essentially the same as that for all operators. Evidently, the experience of families with one or both spouses employed at CEC resulted in a more favorable attitude toward further industrialization than the experience of families with husbands, wives or both employed at other nonfarm jobs. Nevertheless, most of the operators in all groups favored more expansion in manufacturing activity.

Table 32. Response of farm families to the question, "Would you like to see more expansion of manufacturing activity in Maquoketa and other nearby cities in the future?", by nonfarm employment status.

Response	Husband and/or wife employed at CEC job	Husband and/or wife employed at non-CEC job	Neither husband nor wife employed at nonfarm jobs	All families
	(N=118)	(N=20)	(N=94)	(N=2,170 ^a)
Yes	97%	70%	82%	81%
No	2	25	18	18
Did not know	1	5	0	1
Total	100	100	100	100

^a Weighted N.

SUMMARY

In August 1950, the Clinton Machine Company of Clinton, Michigan, (now the Clinton Engines Corporation) established a plant to manufacture small gasoline engines in Maquoketa, Iowa. Workers for the new plant were drawn largely from Maquoketa, nearby towns and farms in the surrounding countryside. Clinton Engines Corporation (CEC) soon became the principal employer in the area.

In 1958, a study was undertaken to examine some of the socio-economic effects of the new industry on the farm, urban-household and business communities. This bulletin reports the findings from the farm phase. It is mainly concerned with the selectivity and employment effects of the new industry on farming and farm living. Characteristics that differentiate farm people who took nonfarm jobs and those who did not are referred to as the selectivity effects of rural industrialization. Changes in family, farm and household characteristics induced by the employment of farm people in nonfarm jobs are termed the employment effects of rural industrialization.

The study area included Jackson County and nine contiguous townships in Jones and Clinton counties. Two populations were defined. One consisted of farm families in which the husband, wife or both had a job at CEC during 1957. All such families were surveyed. The other population was made up of all open-country farm families. A stratified random sample was selected from this population for comparative purposes.

Employment opportunities at the new industry prompted a substantial increase in part-time farming in the area as operators and wives took jobs at the engine plant and continued to carry on a farming operation. In 1957, about one of every 25 farm operators held a job at the plant. Three percent of the wives of farm operators also were employed there. In addition, CEC jobs were held by an appreciable number of sons and daughters living in farm households.

The incidence of CEC employment among farm families, however, was highly selective. Operators and wives who took nonfarm jobs tended to be younger

than average. They also were members of families with relatively low incomes. The farms they operated produced below-average levels of output and employed smaller than average inputs of land, labor and capital. The amount of operator and family labor on these units was comparatively large in relation to the amounts of land and capital, suggesting a relatively low marginal return to labor in the farm business, a relatively large amount of leisure time, or both. Rates of participation in CEC employment by farm families tended to vary inversely with distance from Maquoketa. Beyond 20 miles, the rate was quite low.

Because of selectivity effects, operator employment at the engine plant had a relatively small impact on the farm business. Since most of the farms involved had substantial unemployed or underemployed labor, reductions in the total amount of operator and family labor used in the farm business because of CEC employment were reported on only 28 percent of the farms. While 63 percent of the farm operators employed at CEC reported working less on the home farm because of their nonfarm jobs, 44 percent reported increases in farm work by wives, and 34 percent reported increases in farm work by other members of the household. The increase in family income from CEC employment induced some increase in farm investment, particularly in labor-saving forms of technology. There was little change in land input because of CEC jobs. On a small proportion of the farms, there was some shift away from labor-intensive enterprises (corn, oats, soybeans, milk cows and lambs) to labor-extensive enterprises (beef cows, hay and pasture). Thirty-six percent of the operators with CEC jobs reported that their total output of farm products declined because of nonfarm employment. But, in most of these cases, the output effect probably was small.

CEC employment had a large effect on family income from nonfarm sources. For more than two-thirds of the families with operators employed at the plant, the increase in income from nonfarm work was not associated with any appreciable decline in income

from farming. So, for most of the farm families in which the husbands had CEC jobs, the income from the job was a net addition to family income.

By permitting fuller utilization of operator and family labor, CEC employment produced a substantial increase in net family income. Nearly 46 percent of the families with husbands, wives or both working at the plant reported increases in net family income in excess of \$3,000 per year because of CEC jobs. About 35 percent reported increases of \$2,000 to \$2,999 per year, and 13 percent reported additions of \$1,000 to \$1,999 per year. Only 6 percent reported increases of less than \$1,000. The median increase was \$2,975. Because of the selectivity effects, the expansion in employment opportunities in Maquoketa also had the effect of reducing income inequality both among farm families and among subareas within the area of impact.

The evidence indicated that most of the increase in family income was used to raise current levels of living. However, some was used to repay debts and for investment in the farm business. Employment at CEC also had an influence on spatial shopping patterns. Families with operators, wives or both working at CEC reported that, because of their nonfarm jobs, they did more shopping in Maquoketa and less shopping in other nearby towns. Groceries and clothing were among the items affected most, and recreation and banking services were among the items affected least by the shift in shopping location.

Employment at the engine plant had few substantial effects on family organization. Most of the adjustments were in response to time schedule demands of the CEC job. Decision-making in the family became

more unilateral because of the required absence from the home of one or the other of the spouses. Employment of the farm wife at the plant tended to increase her authority in relation to that of her husband. But the force of tradition held this to a minimum.

Effects on the division of labor within the family reflected primarily the availability of husband and wife for various tasks. Since farm husbands do not normally participate extensively in household and child-care tasks, operator employment at the plant had little effect on the division of labor with respect to these tasks. Employment of wives, however, materially reduced their participation in household and child-care tasks. Most of the slack was taken up by children and household members other than husbands. Primarily because of selectivity effects, wives in CEC households tended to assume more responsibility for family financial tasks than did wives in households with neither spouse employed at a nonfarm job.

Employment of farm husbands or wives, or both, at the plant produced a net reduction in participation in social functions. This was associated mainly with changes in time schedules and a decline in the amount of leisure time, particularly in the evening. Some families dropped some of their memberships in organizations or reduced their attendance at meetings and social gatherings. Others acquired new group memberships and formed new associational patterns because of new acquaintances and new interests developed on the job. Although there was a net reduction in social activities consequent to nonfarm employment, because of selectivity effects farm husbands and wives with CEC jobs were more active socially than those without nonfarm employment.

APPENDIX

Table A-1. Division of decision-making responsibility between husband and wife in farm families.

Decisions	Person making the decision			Total
	Husband always or husband more than wife	Wife and husband equally	Wife always or wife more than husband	
	98.9	1.1		100.0
Husband's nonfarm job				
Purchase appliance or major furniture item	13.4	81.3	5.3	100.0
Amount of spending money for children	12.2	71.4	16.4	100.0
To attend movies and other entertainment	11.0	76.9	12.1	100.0
Major punishment for children	8.2	71.9	19.9	100.0
Visiting friends and relatives	7.0	78.3	14.7	100.0
To call a doctor	4.9	73.3	21.8	100.0
Amount to spend for food	1.1	46.2	52.7	100.0
Wife's nonfarm job		0.4	99.6	100.0

Table A-2. Husband's "power" in decision-making in farm families.

Decision	Power index ^a
Husband's nonfarm job	4.27
Purchase major appliance or furniture	3.05
Spending money for children	2.95
Attendance at movies, etc.	2.89
To visit friends or relatives	2.86
Major punishment for children	2.79
To call a doctor	2.75
How much to spend for food	2.08
Wife's nonfarm job	1.80

^a Index of 1 represents complete wife dominance, an index of 5 represents complete husband dominance, and an index of 3 represents an equal balance of power.

Table A-3. Distribution of family tasks in farm families.

	Person usually performing the task				Total
	Wife only or wife and another person	Wife and husband	Husband only or husband and another person	Other person only	
			Percent		
Household tasks					
Family wash	89.5	1.0	2.0	7.5	100.0
Getting breakfast	84.3	7.9	1.9	5.9	100.0
Picking up	82.8	10.3	0.1	6.8	100.0
Dishes of main meal	78.4	4.6	0.9	16.1	100.0
Care of yard and lawn	28.0	24.0	21.0	27.0	100.0
Fixing broken items	16.2	13.1	50.7	20.0	100.0
Child care and control tasks					
Seeing that the children wear right clothing	85.0	0.2	0.0	14.8	100.0
Getting children ready and off to school	73.0	4.6	0.4	22.0	100.0
Helping children with homework	53.0	15.0	3.5	28.5	100.0
Seeing that children go to bed	52.0	32.5	6.1	9.4	100.0
Taking children to doctor or dentist	43.7	43.4	12.9	0.0	100.0
Reading to children	36.1	17.4	1.5	45.0	100.0
Settling childrens' arguments	23.3	58.8	9.7	8.2	100.0
Financial tasks					
Shopping for groceries	48.5	42.1	8.5	0.9	100.0
Keeping accounts	27.6	28.0	40.5	3.9	100.0
Paying bills	11.4	53.6	32.6	2.4	100.0
Planning savings	4.3	65.0	26.2	4.6	100.0
Farm work tasks					
Care of chickens	58.8	10.4	13.5	17.3	100.0
Gardening	61.9	26.7	7.1	4.3	100.0
Other chores	4.6	36.8	52.0	6.6	100.0
Field work	2.0	14.6	78.7	4.7	100.0

Table A-4. Index of wife's performance for 21 tasks.

Tasks	Participation index
Household tasks	
Family wash	4.8
Dishes for main meal	4.7
Getting breakfast	4.7
Picking up and putting away clothing	4.6
Caring for the yard and lawn	3.2
Fixing broken items	2.2
Child care and control tasks	
Getting children off to school	4.9
Seeing that children wear right clothing	4.9
Helping children with homework	4.3
Reading to children	4.2
Seeing that children get to bed	4.0
Taking children to doctor or dentist	3.6
Settling childrens' arguments	3.2
Financial tasks	
Shopping for groceries	3.8
Paying bills	2.6
Planning savings	2.5
Keeping records and accounts	2.7
Farm work tasks	
Gardening	4.1
Care of chickens	4.1
Other chores	2.1
Field work	1.7

Table A-5. Attitudes toward farm and industrial work.

Items	Answer categories and weights				
	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
1. The disadvantages of farming outweigh the advantages	1	2	3	4	5
2. The disadvantages of industrial work outweigh the advantages	1	2	3	4	5
3. Everything considered I would be happier farming than engaging in any other occupation	5	4	3	2	1
4. For me, industrial work would be a very interesting way to earn a living	5	4	3	2	1
5. Living on a farm is just too much hard work	1	2	3	4	5
6. Industrial work would be drudgery because I'd be doing the same thing day in and day out	1	2	3	4	5
7. I dislike the farm with its many inconveniences	1	2	3	4	5
8. The trouble with industrial work is that a person has no freedom	1	2	3	4	5
9. I like farming as a way of life	5	4	3	2	1
10. Industrial work offers a person better pay than most jobs	5	4	3	2	1
11. The farm is the best place to live	5	4	3	2	1
12. Industrial work with its shorter and regular hours makes a better way of life	5	4	3	2	1